DOCUMENT RESUME

ED 350 648 EA 024 271

AUTHOR Fukumoto, Keith H.
TITLE The Department of Education Budget: Selected Issues in Public School Funding and Accountability. Report No. 6.
INSTITUTION Hawaii State Dept. of Education, Honolulu.
PUB DATE 91
NOTE 156p.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS *Accountability; Cost Indexes; *Educational Finance; Elementary Secondary Education; Evaluation Methods; Expenditure per Student; *Expenditures; Inflation (Economics); Operating Expenses; *Public Schools; Resource Allocation; *School Funds; *State Departments of Education
IDENTIFIERS *Hawaii

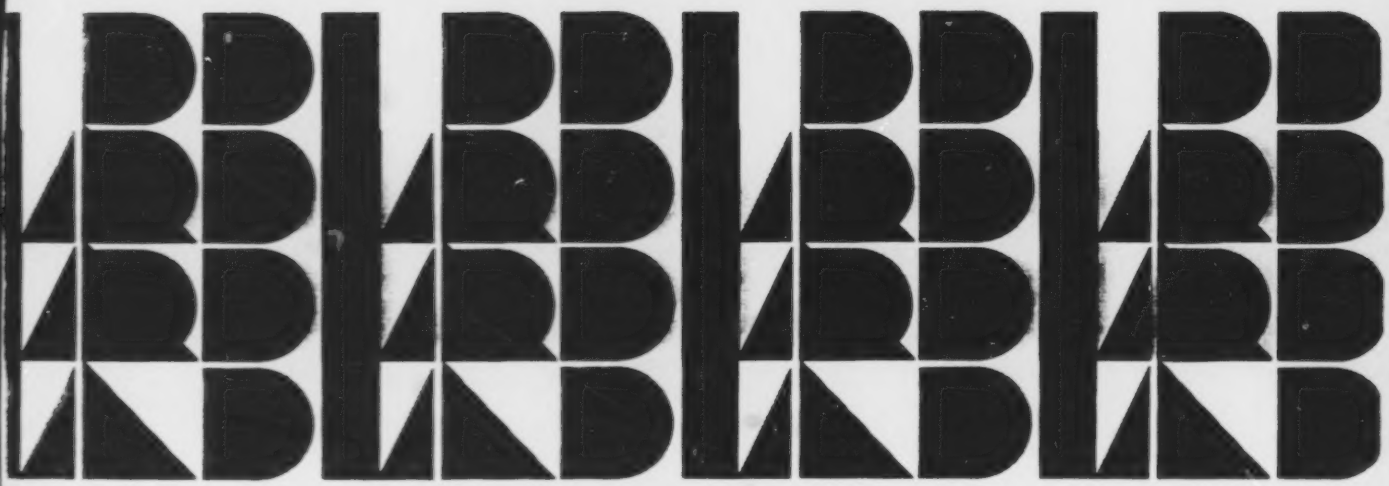
ABSTRACT

Findings of a study on public school funding and accountability in Hawaii are presented in this report. Following a detailed executive summary, the introduction outlines the state legislative history that mandated the study and describes the study's design. Chapter 2 discusses the different methods used to analyze educational expenditures and their limitations, proposes alternatives, and identifies their assumptions. Chapter 3 examines the relationship between inflation and current operations expenditures and describes the changes in expenditures over time. It also discusses the theory and design of a school price index to measure the effects of inflation on elementary/secondary operations. The fourth chapter compares the amounts expended for such functions as administrative support and those expended directly for students, such as classroom teaching. The utility of the current accountability system and the equity of resource-allocation procedures used by the State Department of Education (DOE) are assessed in chapters 5 and 6. Chapter 7 analyzes the current program structure of the department of education and presents two new alternatives. Seventeen tables are included. Appendices contain lists of expenditures and comments by the DOE on the study findings. A summary and endnotes accompany each chapter. (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED385648

THE DEPARTMENT OF EDUCATION BUDGET: SELECTED ISSUES IN PUBLIC SCHOOL FUNDING AND ACCOUNTABILITY



LEGISLATIVE REFERENCE BUREAU / STATE OF HAWAII / 199

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

F. Enos

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 024 271

BEST COPY AVAILABLE

THE OFFICE OF THE LEGISLATIVE REFERENCE BUREAU

The present Office of the Legislative Reference Bureau resulted from Act 171, Session Laws of Hawaii 1972, which transferred, as of July 1, 1972, the former Legislative Reference Bureau out of the jurisdiction of the executive branch of government to the legislative branch of government. In addition, the Office of the Revisor of Statutes, formerly under the Judiciary, was placed within the Bureau for administrative purposes only. In 1977, Act 8 of the First Special Session, completed the integration process by making the functions performed by the revisor additional responsibilities of the Bureau. The end result of this legislation is to centralize under the Legislature the functions of bill drafting and bill publication as well as research and reference services supportive of the Legislature. The new Bureau is one of three legislative support agencies directly under the Legislature.

As a governmental institution, however, the Legislative Reference Bureau has its origins in Act 91, Session Laws of Hawaii 1943, when the Territorial Legislature established the organization as an integral part of the University of Hawaii.

Services performed by the Bureau cover a wide range from major report writing to bill drafting for the Legislature to answering telephone requests for information. Briefly, these services include:

1. Maintaining a reference library.
2. Preparing studies and reports and drafting of legislative measures in response to legislative requests.
3. Providing service to legislative committees, including interim committees.
4. Publishing standard reports.
5. Compiling and exchanging information with similar legislative service agencies in other states and with national organizations.
6. Providing information to legislators.
7. Conducting and coordinating pre-session seminars for members of the Legislature and for their legislative staffs.
8. Serving as a member of governmental boards and commissions when Bureau representation is specified.
9. Conducting impartial research, including legal research, as may be necessary for the enactment of legislation upon the request of the Legislature.
10. Controlling and maintaining the operations of any legislative data processing program as may be established.
11. Assisting, upon request, other legislative service agencies on matters within the Bureau's competency.
12. Maintaining a legislative information office serving the general public when the Legislature is in session.
13. Publishing the session laws and supplements to, and replacement volumes of, the revised statutes.
14. Conducting a systematic and continuing study of the laws of Hawaii for the purpose of reducing their number and bulk, removing inconsistencies, redundancies, unnecessary repetitions and otherwise improving their clarity; and for that purpose, preparing and submitting to the Legislature such reports, recommendations and drafts of legislation to carry out recommendations made.
15. Establishing a format for, and compiling and publishing an index of, rules adopted under the Administrative Procedure Act.

BEST COPY AVAILABLE

THE DEPARTMENT OF EDUCATION BUDGET: SELECTED ISSUES IN PUBLIC SCHOOL FUNDING AND ACCOUNTABILITY

Keith H. Fukumoto
Researcher

Report No. 6, 1991

Legislative Reference Bureau
State Capitol
Honolulu, Hawaii 96813

FOREWORD

This report has been prepared in response to Section 92 of Act 296 (the General Appropriations Act of 1991), which requested the Legislative Reference Bureau to conduct a study on public school funding in Hawaii.

The Bureau extends its sincere appreciation to the following individuals from the Hawaii Department of Education: Arthur Iseri and Stanley Okano, Accounting Section, Office of Business Services; Selvin Chin-Chance and Marion Crislip, Test Development Section, Office of the Superintendent; Glenn Hirata and Thomas Gans, Evaluation Section; Office of the Superintendent; Randall Honda, Budget Branch, Office of the Superintendent; Gael Mustapha, Communications Branch, Office of the Superintendent; Margaret Donovan and Patrick McGivern, Special Education Section, Office of Instructional Services. Appreciation is also extended to Marion Higa, Analyst, Office of the Legislative Auditor and Lawrence Picus, Center for Research in Education Finance. The generous assistance and cooperation of these individuals and countless others significantly facilitated the preparation of this report.

Samuel B. K. Chang
Director

December 1991

TABLE OF CONTENTS

Page

FOREWORD ii

EXECUTIVE SUMMARY vii

1. INTRODUCTION 1

Legislative History 1
Caveats 2
Design of the Study 2
Endnotes 3

2. MEASURES, METHODOLOGIES, AND DATA: THEIR DESIGN AND LIMITATIONS .. 4

Introduction 4
Measures of Expenditures for Education 4

Total Annual Expenditures for Education 4
Expenditure Per Pupil in Average Daily Membership 4
Current Operations Expenditures 6
Inflation 6
Representative Expenditures 7
Pupil-teacher Ratio 11

Methods of Comparing Expenditures for Education 11

Proportions 11
Percent Change From a Base Year 12
Rank Order and Changes in Rank Order 12
Comparing Rates of Change 12

Comparability of the National Center for Education Statistics' Expenditure Data 13
Summary 13
Endnotes 14

3. INFLATION AND CURRENT OPERATIONS EXPENDITURES 18

Introduction 18
Inflation 18
Use of Price Indexes 19
Theory and Design of Price Indexes 19
The School Price Index 20
Current Operations Expenditures 21

Equipment and Motor Vehicles 21
Employee Benefits 22
Current Operations Expenditures Data 22

Results 22
Discussion 23

Page

Endnotes 27

4. EXPENDITURES FOR EDUCATION: AN INTERSTATE PERSPECTIVE 31

Introduction 31
Direct Measures--State Per Pupil Expenditures 31

Methodology 31
Results 33

Indirect Measures--State Ratios of Student Membership to FTE Staff 39

Methodology 39
Results 41

Indirect Measures--State Ratios of FTE Staff 48

Methodology 48
Results 49

Additional Analyses of Indirect Measures--State Ratios of FTE Staff 55

Methodology 55
Results 56

Discussion 56

Direct Measures--State Per Pupil Expenditures 56
Indirect Measures--State Ratios of Student Membership to FTE Staff 57
Indirect Measures--State Ratios of FTE Staff 58
Additional Analyses of Indirect Measures--State Ratios of FTE Staff 59

Summary 60
Endnotes 67

5. ACCOUNTABILITY 70

Introduction 70
The Nature of Accountability 70
Foundation Program Objectives, Performance Expectations, Essential Competencies, and the Regular Instruction Program 71

The Relationship Between Foundation Program Objectives, Performance Expectations, and Essential Competencies 71
The Objective of the Regular Instruction Program 71

Competency-Based Measures 72
Educational Assessment and Accountability System 75

Background 75
Applicability of the EAAS to the Regular Instruction Program, FPOs, PEs, and ECs 77

Discussion 79

Page

Summary 79
Endnotes 80

6. ALLOCATION 86

Introduction 86
Equity of Educational Inputs and Educational Outcomes 86
Assistance for Special Student Populations 93
Enrollment Allocation Weights and School-by-School Budgeting 95
Policy Decisions 97
Summary 98
Endnotes 98

7. PROGRAM STRUCTURE 101

Introduction 101
Evolution of the Program Structure for Education 101

First Period 102
Second Period 102
Third Period 102
Fourth Period 103
Fifth Period 103
Sixth Period 103
Seventh Period 103

Policy Issues 104
Limitations 106
Alternatives 107

School-by-School Budgeting 108
Translating 108

Translation 109
Summary 110
Endnotes 110

TABLES

1. Change in Per Pupil Expenditure 24

2. Current Operations Expenditures in Current Dollars 25

3. Total Current Expenditures Per Pupil for Fiscal Year 1989 Based on Student Membership as of Fall 1988 34

4. Current Expenditures Per Pupil for Instruction for Fiscal Year 1989 Based on Student Membership as of Fall 1988 35

5. Current Expenditures Per Pupil for Support Services for Fiscal Year 1989 Based on Student Membership as of Fall 1988 36

6. Current Expenditures Per Pupil for Noninstruction for Fiscal

Page

Year 1989 Based on Student Membership as of Fall 1988 37

7. Current Expenditures Per Pupil for Direct Support for Fiscal Year 1989 Based on Student Membership as of Fall 1988 38

8. Ratios of Student Membership to Full-Time Equivalent (FTE) Instructional Staff: Fall 1989 42

9. Ratios of Student Membership to Full-Time Equivalent (FTE) Administrative Staff: Fall 1989 44

10. Ratios of Student Membership to Full-Time Equivalent (FTE) Support Staff: Fall 1989 46

11. Number of Full-Time Equivalent (FTE) Instructional Staff FTE, Administrative Staff, and FTE Support Staff: Fall 1989 50

12. Ratios of Full-Time Equivalent (FTE) Instructional Staff and FTE Administrative Staff to FTE Support Staff: Fall 1989 52

13. Ratios of Full-Time Equivalent (FTE) Instructional Staff and FTE Support Staff to FTE Administrative Staff: Fall 1989 53

14. Ratios of Full-Time Equivalent (FTE) Instructional Staff to FTE Administrative Staff and FTE Support Staff: Fall 1989 54

15. Ratios of All Full-Time Equivalent (FTE) Staff Other Than Officials and Administrators to FTE Officials and Administrators: Fall 1989 61

16. Ratios of All Full-Time Equivalent (FTE) Staff Other Than Other Support Staff to FTE Other Support Staff: Fall 1989 63

17. Ratios of All Full-Time Equivalent (FTE) Teachers to FTE Staff Other Than Teachers: Fall 1989 65

APPENDICES

A. Expenditures for Equipment and Motor Vehicles in Current Dollars 113

B. Expenditures for Government Contribution to Social Security, Retirement Funds, Insurance, and Medical Plan in Current Dollars 117

C. Comments of the Department of Education Regarding a Preliminary Draft of this Report 119

EXECUTIVE SUMMARY

Introduction

This executive summary discusses the Legislative Reference Bureau's findings and recommendations with respect to selected issues in public school funding and accountability. This summary does not discuss the assumptions upon which some of the Bureau's findings and recommendations are based and the caveats regarding their interpretation and use.

Because this is only a summary document, it should not be used in lieu of Chapters 2, 3, 4, 5, 6, and 7, to support decisions affecting public policy, including the appropriation and allocation of personnel and material resources. At a minimum, readers should review carefully the indicated page or pages that discuss the Bureau's findings and recommendations with respect to a selected issue or selected issues in public school funding and accountability.

Scope of the Study

Section 92 of Act 296, Session Laws of Hawaii 1991 (the General Appropriations Act of 1991), requests the Legislative Reference Bureau to:

> ...[C]onduct a study of public school funding, including such aspects as the appropriateness of the current system of resource allocation and accountability in the department of education; analysis of the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching; [emphasis added] comparison of Hawaii's funding levels and funding systems with those of other selected school systems; and analysis of alternatives to improve the present methods of budgeting, appropriating, and allocating funds for public schools....

In discussing the need for this study in Conference Committee Report No. 75 on House Bill No. 139, Sixteenth Legislature, Regular Session of 1991, the Legislature stated:

> ...Your Committee is concerned that while a significant portion of the State's resources and increasingly larger amounts are appropriated each year to fund public schools, there are still claims and criticisms that not enough funds have been provided to the Department of Education. Your Committee is also concerned that while education budgets have increased, there remains uncertainties as to how much of the funds are in direct support of individual schools [emphasis added] and whether the current funding system is appropriate in view of such developments as SCBM [School/Community-Based Management]....

This study does not attempt to validate data that rank Hawaii's per pupil expenditures for education, class size ratios, and per capita direct school expenditures, along with the same for the other forty-nine states and the District of Columbia. Similarly, this study does not attempt to validate data that compare changes in the percentage of public education

expenditures to total State operating expenditures over time. In short, this study does not attempt to validate the Department's contention that over the past twenty-five years the funding support for public education in Hawaii has deteriorated badly, sliding from near the top to near the bottom nationally, and that the funding erosion has been so dramatic, the State's conduct in this matter could be described as gross neglect.

The Bureau does not believe that new knowledge would be created by reanalyzing and reinterpreting the same data, using the same methodologies, that the Department has already analyzed, interpreted, and submitted to the Legislature for review. The Bureau does not believe, and the legislative history of Act 296 does not confirm, that the Legislature was interested in having these same data reanalyzed and reinterpreted using the same methodologies as the Department. Rather, the Bureau believes that the Legislature was primarily interested in how the Department was expending the funds appropriated by the Legislature; specifically, how much was being expended by the Department for such functions as administrative support in comparison to how much was being expended directly for students, such as classroom teaching.

Comments of the Department of Education Regarding a Preliminary Draft of this Report

On November 15, 1991, the Bureau transmitted to the Superintendent of Education chapters 2 through 7 from a preliminary draft of this report. The Bureau asked that the Superintendent make any comments, cite any errors, state any objections, or suggest any revisions to these drafts. The Superintendent's response to these drafts is included as Appendix C. When deemed appropriate by the Bureau, revisions to these drafts were made and the Superintendent's comments and suggestions incorporated into this report.

Since not all of the Superintendent's comments and suggestions were incorporated into this report, the Bureau included the Superintendent's unedited comments to the abovementioned drafts as an appendix.

Inflation and Current Operations Expenditures

*Not including expenditures for capital outlays, debt service, equipment, and motor vehicles, per pupil expenditures increased 2.0 percent from fiscal year 1988-1989 to fiscal year 1989-1990, after inflation. For further discussion, see pages 22 to 23.

Expenditures for Education

*Compared to the other 49 states and the District of Columbia, Hawaii's high expenditure per pupil for "noninstruction" (i.e., food service operations and other auxiliary enterprise operations), appears to be out of character with the State's low total per pupil expenditure and per pupil expenditures for "instruction" (i.e., activities dealing directly with the interaction between students and teachers) and "support services" (i.e., student support services, staff support services, general administration, school administration, business, operation and maintenance of plant, student transportation services, and central expenditures). The fact that Hawaii's expenditure per pupil for noninstruction is greater than the median state expenditure per pupil for noninstruction is not remarkable. The fact that Hawaii's expenditure per pupil for noninstruction would place the State in the highest quarter of a distribution consisting of the other forty-nine states and the District of Columbia is, on the

contrary, quite surprising given the State's consistent placement in the next to lowest quarters of similar distributions for total per pupil expenditure and per pupil expenditures for instruction and support services.

*Compared to the other 49 states and the District of Columbia, Hawaii does not appear to have:

(1) A large number of administrative staff (i.e., officials and administrators and school administrators) in relation to the number of students; and

(2) A large number of support staff (i.e., guidance counselors/directors, librarians, and "other support staff") in relation to the number of students.

Hawaii appears to have a small number of instructional staff (i.e., teachers and instructional aides) in relation to the number of students. For further discussion, see pages 39 to 47 (methodology) and pages 57 to 58 (results).

*Compared to the other 49 states and the District of Columbia, Hawaii does not appear to have:

(1) A large number of administrative staff in relation to the number of instructional staff and support staff;

(2) A small number of instructional staff in relation to the number of administrative staff and support staff; and

(3) A large number of support staff in relation to the number of instructional staff and administrative staff.

For further discussion, see pages 48 to 55 (methodology) and pages 58 to 59 (results).

*Compared to the other 49 states and the District of Columbia, Hawaii does not appear to have:

(1) A large number of officials and administrators (i.e., chief executive officers of the education agencies, including superintendents, deputy and assistant superintendents, and other persons with district-wide responsibilities) in relation to the number of staff other than officials and administrators;

(2) A large number of other support staff (i.e., all other staff who serve in a support capacity and are not included in the categories of central office administrative support, library support, or school administrative support) in relation to the number of staff other than other support staff; and

(3) A small number of teachers (i.e., those who provide instruction to prekindergarten, kindergarten, grades one through twelve, or ungraded classes, including those who teach in an environment other than a classroom setting) in relation to the number of staff other than teachers.

It should be noted that Hawaii's count of "officials and administrators" also includes the State Superintendent, Deputy Superintendent, and four Assistant Superintendents. For further

discussion, see pages 55 to 56 and pages 61 to 66 (methodology), and pages 59 to 60 (results).

Competency-Based Measures

*Although the stated measures of effectiveness for the regular instruction program make specific reference to eight foundation program objectives (FPOs) and the competency-based measures (CBMs) for grade 3, the DOE recently suspended both the administration of the CBMs for grade 3 and the piloting of the CBMs for grades 6, 8, and 10. It appears that many of the difficulties encountered by the DOE in administering the CBMs for grade 3 were largely unavoidable. For further discussion, see pages 71 to 73.

*The lack of administrable CBMs for assessing student progress in achieving the performance expectations (PEs) makes it difficult to assess the effectiveness of the regular instruction program, which includes language arts, mathematics, physical education, health, science, art, music, social studies, guidance, foreign languages, practical arts, and vocational-technical education. For further discussion, see pages 73 to 75.

Educational Assessment and Accountability System

*The DOE's Educational Assessment and Accountability System (EAAS) implementation plan does not explicitly discuss a mechanism or the development of a mechanism for linking assessment, analysis, and accountability to some system of programming, planning, budgeting, and management. Given the period of time encompassed by the EAAS implementation plan, the DOE should begin discussing this mechanism or the development of this mechanism in order to ensure the timely deployment of a useful educational assessment and accountability system. For further discussion, see page 76.

*While the examination and resolution of conceptual and technical problems are of great importance to the successful implementation of the EAAS, the DOE and the Legislative Auditor are presently at odds over the speed at which the DOE is researching and developing the EAAS. The six working papers and draft working papers completed by the DOE as part of its research and development of the EAAS provide sufficient information for the Legislature to make an informed choice between the need for immediacy and the need for quality with respect to the development of the EAAS. If the Legislature chooses the need for immediacy over the need for quality, then the Legislature should be prepared to accept the quality of the product developed by the DOE. Conversely, if the Legislature chooses the need for quality over the need for immediacy, then the DOE should be prepared to accept responsibility for the quality of the product delivered to the Legislature. For further discussion, see pages 76 to 77.

*The EAAS should be deployed in functional increments that will be useful to the Legislature, school communities, and the DOE. Deciding what these increments should be and when they should be deployed is difficult, if not practically impossible, to predict. Although the research and development of the EAAS should not and probably cannot be held to a rigid schedule, the Legislature and the DOE should come to some tentative agreement on the incremental deployment of the EAAS. For further discussion, see page 77.

Applicability of the EAAS to the Regular Instruction Program

*Although the DOE proposes to use the EAAS to guide the Department's program planning and budget development efforts in the future, the EAAS implementation plan makes no mention of the regular instruction program, FPOs, PEs, or CBMs. Given the fact that the EAAS is designed to provide school-level assessment and accountability reports rather than program-level assessment and accountability reports, it would appear that integration of the EAAS with the State's PPB system will not be a high priority objective for the DOE. For further discussion, see page 77.

*The DOE appears to be developing two separate assessment and accountability systems; one focused on program-level performance outcomes and another focused on school-level performance outcomes. While the development of two assessment and accountability systems is not necessarily redundant or wasteful, the utility of the different levels of data that will be generated by the two systems should be explained in greater detail. For further discussion, see page 78.

*In view of the State's current commitments to SCBM and PPB, the development of two separate systems of assessment and accountability is consistent with the respective information demands of SCBM and PPB. The development of linkages between these two assessment and accountability systems should be carried out concurrently, if possible, to maximize the usefulness of the final products to the DOE, the Board of Education, the Legislature, and the Governor. For further discussion, see page 78.

*The Bureau believes that the crucial issue confronting the Legislature at this time is whether or not school communities should be permitted to implement SCBM without the EAAS in whole or in increments. While the success or failure of SCBM will not be evaluated solely on the basis of the EAAS (school status and improvement reports are to also be considered), the EAAS will play an important role in the evaluation of SCBM schools and, consequently, the evaluation of SCBM itself. Consequently, the following policy-related question should be addressed by the Legislature, "Should school communities be permitted to implement SCBM without having in place a functioning educational assessment and accountability system?" For further discussion, see page 79.

Equity of Educational Inputs and Educational Outcomes

*While the DOE's system of allocating resources appears to be highly equitable in terms of distributing educational inputs to the seven departmental school districts and 232 regular schools in the State, the DOE appears to lack a quantifiable methodology for ensuring the equity of educational outcomes amongst disparate student populations (e.g., "alienated", "poor English speaking", "low achieving", "special education", and "regular" students). Educational outcomes, or the results of the interaction between students and the public education system, include, but are not limited to, educational attainment and educational achievement. Educational attainment refers to the rate of high school completion and the percentage of students who drop out of school, whereas educational achievement refers to student achievement as measured by test scores. To place the idea of ensuring the equity of educational outcomes into perspective, it is useful to examine the following question: "Should the socio-economic status or, in certain instances, the disability status of a student determine the student's level of educational attainment and educational achievement?" For further discussion, see pages 88 to 89.

*One limitation of methodologies attempting to ensure the equity of educational outcomes is that all students must be capable of similar levels of educational attainment and educational achievement if educational inputs are to be allocated on the basis of quantitative rather than qualitative assessments. Another, perhaps more troublesome, limitation of methodologies attempting to ensure the equity of educational outcomes is their ability to create gross inequities in educational inputs. For further discussion, see pages 90 to 91.

*If the Legislature chooses to pursue the idea of allocating educational inputs to ensure the equity of educational outcomes, then the Legislature may want to undertake the following:

(1) Request the DOE to investigate the potential socio-economic impacts of allocating educational inputs to ensure the equity of educational outcomes; and

(2) Request the DOE to investigate the feasibility of using existing qualitative and quantitative data to allocate educational inputs in order to ensure the equity of educational outcomes.

For further discussion, see pages 91 to 92.

*The DOE's current system of allocating resources is not well-suited to ensuring the equity of educational outcomes partly because of the manner in which the resources are appropriated by the Legislature. Resources for regular instruction (EDN 105), other regular instruction (EDN 106), special education (EDN 107), and compensatory education (EDN 108), are appropriated by the Legislature as separate amounts, without the benefit of empirical data on the relative amounts of educational inputs needed to ensure the equity of educational outcomes. For further discussion, see pages 92 to 93.

*The lack of a quantifiable methodology for allocating resources to ensure the equity of educational outcomes is, at the very least, an impediment to holding school principals, district superintendents, the Superintendent of Education, and the Board of Education, accountable for any inequities in educational outcomes. Consequently, the following policy-related questions should be addressed by the Legislature:

(1) Should the methodology used by the DOE to allocate resources shift from ensuring the equity of educational inputs toward ensuring the equity of educational outcomes?

(2) Should the methodology used by the DOE to allocate resources be established by the Legislature or the DOE? If "the Legislature", then should the methodology be established by law?

(3) Should resources be appropriated by the Legislature in one lump sum if the methodology used by the DOE to allocate these resources can ensure the equity of educational outcomes?

If the answer to the first of the three foregoing questions is "no", then the following policy-related questions should be addressed by the Legislature:

(1) Should the Legislature continue to permit the Superintendent of Education and district superintendents to withhold resources? If "yes", then;

(2) Should the Legislature limit the percentage of resources that can be withheld by the Superintendent of Education and district superintendents? and

(3) Should the Legislature specify the appropriate use of resources that are withheld by the Superintendent of Education and district superintendents? If "yes", then should these uses be established by law?

If the answer to the first of the three foregoing questions is "no", then the following policy-related questions should be addressed by the Legislature:

(1) Should the Legislature prohibit the Superintendent of Education and district superintendents from withholding resources? If "yes", then should this prohibition be established by law?

(2) Should the Legislature appropriate resources directly to the state office and district offices?

For further discussion, see pages 97 to 98.

Assistance for Special Student Populations

*Of the three main approaches (i.e., weighting schemes, excess cost formulas, and flat grants) used to allocate resources for special student populations, weighting appears to be the most applicable to Hawaii. Although the manner in which the Legislature currently appropriates resources for education programs obviates the need for enrollment allocation weights, this does not preclude the use of enrollment weights in such areas as programming, planning, budgeting, and management. Enrollment weights can be used to determine the relative amounts that should be appropriated for different education programs or to allocate a lump-sum appropriation to different education programs, when valid and reliable enrollment data are available. For further discussion, see pages 94 to 95.

Enrollment Allocation Weights and School-by-School Budgeting

*Enrollment weights would seem to provide an objective, quantifiable methodology for developing school budgets. One advantage of using enrollment weights and a formula to develop school budgets is that the Legislature would not have to concern itself with the burdensome task of reviewing and overseeing the execution of more than 200 individual school budgets. Other important advantages to using enrollment weights and a formula to develop school budgets are that an enrollment weights and formula approach to budgeting could:

(1) Increase the impartiality of budgeting and resource allocation;

(2) Focus attention on educational outcomes and ways to ensure the equity of educational outcomes;

(3) Allow the Legislature to concentrate on determining education policy and the education budget; and

(4) Permit the DOE to concentrate on implementing the Legislature's education policies and executing the education budget.

For further discussion, see pages 95 to 96.

*One disadvantage of an enrollment weights and formula approach to budgeting is the fact that no enrollment weight and formula can fully account for truly exceptional circumstances. One limitation of this approach to budgeting is that specific legal mandates could prevent personnel and material resources from being decreased in an equitable manner. For further discussion, see page 96.

*An enrollment weights and formula approach to budgeting would appear to be especially compatible with SCBM and lump-sum budgeting since it would allocate resources in a way that ensures the equity of educational outcomes and allow individual schools the freedom to use these resources in a manner deemed appropriate by the school's community. For further discussion, see pages 96 to 97.

Program Structure

*Any discussion concerning alternatives to the current program structure of the DOE must be based on a notion of what the program structure should accomplish. The following propositions identify some of the important policy issues that should be considered in this discussion.

(1) The DOE's program structure should be dictated by the direction of school reform, and conversely, the direction of school reform should not be dictated by the DOE's program structure.

(2) The DOE's program structure should reflect how educational services are organized and delivered by schools, district offices, and the state office. With this program structure, legislative appropriations are also brought into alignment with how educational services are organized and delivered.

(3) The DOE's program structure should reflect state education goals.

(4) The DOE's program structure should consider allocating educational inputs in a manner that ensures the equity of educational outcomes for disparate student populations and for schools with disparate student populations. (It should be noted that this issue is one of the policy questions that may need to be addressed by the Legislature.)

For further discussion, see pages 104-106.

*By not adopting a program structure for regular instruction that reflects how schools are organized, provide services, and expend resources:

(1) A large number of unilateral decisions regarding the allocation of resources need to be made by the DOE unless the Legislature provides a translation linking the appropriation-budget structure to the DOE program structure;

(2) There would be no effective way to verify that teachers are expending these resources in the manner intended by the Legislature; and

(3) Depending on the amount of recordkeeping and reporting requirements imposed on teachers, the traditional DOE program structure for regular instruction could eventually thwart the intent of SCBM.

For further discussion, see page 107.

*Some of the most persistent problems encountered in the development of viable alternatives to the current program structure of the DOE stem from the program structure for regular instruction in the schools. The DOE's program structure for regular education was comprised of elementary, intermediate, and high school expenditure functions at one time, and mathematics, language arts, science, etc., expenditure programs at another. The problem with these program structures stemmed from the fact that schools and teachers were not organized strictly according to expenditure functions (i.e., elementary, intermediate, and high school) or expenditure programs (i.e., mathematics, language arts, science, etc.). For further discussion, see pages 106 to 107.

*Because SCBM has yet to be implemented in all schools, universal lump-sum budgeting would not appear to be warranted at this time. While lump-sum budgeting is warranted for SCBM schools, it is not warranted for non-SCBM schools. As the DOE moves toward 100 percent participation in SCBM, enrollment weights and a formula could be used by the Legislature to determine the respective amounts that should be appropriated for regular instruction (EDN 105), other regular instruction (EDN 106), special education (EDN 107), and compensatory education (EDN 108). Personnel and material resources for these four expenditure functions, minus personnel and material resources for noninstructional classroom services, could then be allocated to the schools based on enrollment. For further discussion, see page 108.

*Another alternative to the current program structure of the DOE would be to leave the current program structure "as is" and to direct the allocation and expenditure of personnel and material resources through a translation linking the appropriation-budget structure to the DOE program structure. If the Legislature chooses to utilize a translation for these purposes, then the following should be considered:

(1) The translation should not contain so many expenditure categories that it weakens the program structure of the DOE. Changes to the current program structure should be made "up front" and not through the "back door" by way of the translation;

(2) The translation should focus only on those areas of primary concern to the Legislature, e.g., the amounts expended for classroom instruction versus noninstructional classroom services;

(3) Although the translation should be treated as a supplemental display to the current program structure of the DOE, the translation should be established by law; and

(4) The translation should be used by the DOE to prepare its annual operating budget request in line with PPB, the State's planning, programming, and

budgeting system. The DOE should also use the translation to account for all expenditures and variances between budgeted and actual expenditures.

For further discussion, see pages 108 to 109.

*The following is just one of many versions of a translation that can be used by the Legislature to provide explicit instructions to the DOE on how specific resources should be expended. Expenditure categories for the translation are denoted by triple asterisks (***) and **bold** typeface. Expenditure functions that comprise the current program structure of the DOE have been placed in specific expenditure categories.

TRANSLATION

State and district-wide support to schools

State and district-wide administrative support (***)

State administration (EDN 303)
District administration (EDN 304)
Instructional development (general direction only)(EDN 205)
School food services (state administrative services only)(EDN 305)
Physical plant operations and maintenance (state administrative services only)(EDN 307)

State and district-wide support services (***)

Instructional development (except general direction)(EDN 205)
School food services (except state administrative services)(EDN 305)
Physical plant operations and maintenance (except state administrative services)(EDN 307)
Safety and security services (EDN 306)
Educational assessment and prescriptive services (EDN 208)
Instructional media (audiovisual centers only)(EDN 204)
Noninstructional classroom services
  Regular instruction (EDN 105)
  Other regular instruction (EDN 106)
  Special education (EDN 107)
  Compensatory education (EDN 108)

Direct support to schools

Classroom instruction (***)

Regular instruction (EDN 105)
Other regular instruction (EDN 106)
Special education (EDN 107)
Compensatory education (EDN 108)

Student services (***)

Instructional media (school libraries only)(EDN 204)
Counseling (EDN 206)

Student activities (EDN 207)

School administration (EDN 203)

For further discussion, see pages 109 to 110.

CHAPTER 1

INTRODUCTION

> ...When I went to Columbia for my admissions interview in the fall of my senior year at Dartmouth, I felt very much at home in the familiar corridors where Paul had helped me masquerade as a medical student years before. It was inconceivable that I would not be admitted. My discussion with the admissions panel seemed to go well until one of them asked me, "Do you ever expect to make any major discoveries in medicine?"
>
> * * *
>
> I responded, "Well, sir, from what little experience I have in reading about discoveries in the field of medicine, I rather think that those who make them are building upon the efforts of many who preceded them, but did not do the final thing that achieved success and fame. I would like to be one who makes a major discovery, but I will be content to contribute to the process."[1]
>
> C. Everett Koop
> former Surgeon General of the United States

Legislative History. Section 92 of Act 296, Session Laws of Hawaii 1991 (the General Appropriations Act of 1991), requests the Legislative Reference Bureau (hereinafter referred to as "the Bureau") to:

> ...[C]onduct a study of public school funding, including such aspects as the appropriateness of the current system of resource allocation and accountability in the department of education; analysis of the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching; comparison of Hawaii's funding levels and funding systems with those of other selected school systems; and analysis of alternatives to improve the present methods of budgeting, appropriating, and allocating funds for public schools....

In discussing the need for this study, the Legislature stated:[2]

> ...Your Committee is concerned that while a significant portion of the State's resources and increasingly larger amounts are appropriated each year to fund public schools, there are still claims and criticisms that not enough funds have been provided to the Department of Education. Your Committee is also concerned that while education budgets have increased, there remains uncertainties as to how much of the funds are in direct support of individual schools and whether the current funding system is

> appropriate in view of such developments as SCBM [School/Community-Based Management]....

Caveats. This study builds upon the efforts of preceding investigators who, like the Bureau, have sought to resolve the longstanding questions over public school funding involving the Legislature, the Department of Education (DOE), the Board of Education, and the Governor. The critical issues that this study analyzes will, hopefully, contribute to the dialogue, and in doing so, add to the growing stockpile of knowledge on public school funding.

This study is neither an audit of the DOE nor a study of the issue of governance, as it relates to resource allocation. Findings and conclusions concerning the current system of resource allocation in the DOE therefore should not be construed as an expression of approval or disapproval for any particular structure of governance. Finally, as the Bureau claims no particular expertise in this area, the results of this study should not be regarded as anything other than an attempt by laypersons to analyze objectively the issues presented for examination.

Design of the Study. This study consists of six chapters in addition to this introductory chapter.

Chapter 2 discusses some of the different measures, methodologies, and data that have been used to analyze the amounts expended for education. Specifically, this chapter discusses their limitations; proposes alternatives when alternatives are available; and identifies important assumptions when alternatives are not available.

Chapter 3 provides the working bases for an analysis of the amounts expended for education. Specifically, this chapter examines the relationship between inflation and current operations expenditures, and how current operations expenditures for education have changed over time. This chapter also discusses the theory and design of the school price index developed by Research Associates of Washington specifically for the purpose of measuring the effects of inflation on the current operations of elementary and secondary schools.

Chapter 4 provides the working bases for an analysis of the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students. Specifically, this chapter reanalyzes data published by the United States Department of Education, National Center for Education Statistics in an attempt to directly and indirectly measure the amounts expended for various educational functions.

Chapter 5 assesses the utility of the current system of accountability in the DOE. Specifically, this chapter reviews the relationship among the regular instruction program, foundation program objectives, performance expectations, essential competencies, competency-based measures, and the Hawaii State Test of Essential Competencies. It also discusses the status of the competency-based measures for grades 3, 6, 8, and 10; reviews the background of the Educational Assessment and Accountability System; and discusses the applicability of the Educational Assessment and Accountability System to the regular instruction program.

Chapter 6 assesses the equity of the current system of resource allocation in the DOE. Specifically, this chapter reviews the current system of resource allocation in the DOE with

respect to ensuring the equity of educational inputs and educational outcomes; discusses the limitations, advantages, and disadvantages of methodologies attempting to allocate educational inputs to ensure the equity of educational outcomes; and suggests activities that the Legislature may undertake if it chooses to pursue the idea of allocating educational inputs to ensure the equity of educational outcomes.

This chapter also reviews the manner in which resources are currently appropriated by the Legislature; discusses how the needs of special student populations are currently addressed by the DOE and the Legislature; describes the use of enrollment allocation weights to allocate resources for special student populations and to develop school budgets; and points out the advantages and disadvantages of using an enrollment allocation weights and formula approach to budgeting.

Finally, this chapter discusses the policy decisions that should be addressed by the Legislature with respect to holding school principals, district superintendents, the Superintendent of Education, and the Board of Education, accountable for inequities in educational outcomes.

Chapter 7 provides the working bases for an analysis of the current program structure of the DOE. Specifically, this chapter describes the evolution of the program structure for lower education from fiscal year 1965-1966 to fiscal year 1991-1992; identifies some of the important policy issues that should be considered in a discussion of alternatives to the current program structure of the DOE; discusses some of the persistent problems encountered in the development of viable alternatives to the current program structure; and describes two new alternatives to the current program structure.

ENDNOTES

1. C. Everett Koop. Koop: The Memoirs of America's Family Doctor (New York: Random House, Inc., 1991), p. 52.

2. Conference Committee Report No. 75 on House Bill No. 139, Sixteenth Legislature, Regular Session of 1991, p. 10.

CHAPTER 2

MEASURES, METHODOLOGIES, AND DATA: THEIR DESIGN AND LIMITATIONS

"...[L]earning does not consist only of knowing what we must or we can do, but also of knowing what we could do and perhaps should not do."[1]

Introduction

The purpose of this chapter is to discuss some of the different measures, methodologies, and data that have been used to analyze the amounts expended for education. Specifically, this chapter discusses their limitations; proposes alternatives when alternatives are available; and identifies important assumptions when alternatives are not available. This chapter is not intended to be an authoritative or exhaustive discussion of this subject, and by no means is it intended to question the motives or integrity of other investigators or to raise doubt on the quality of what appears in the educational literature. Rather, the goal of this discussion is to assist the Legislature in the critical appraisal of reports analyzing the amounts expended for education.

Most, if not all, applications of data are susceptible to some sort of criticism. Agencies, such as the DOE, must use available data and work to improve them at the same time. There are, at this time, no perfect data on the amounts expended for education. Consequently, it is especially important to understand the limitations of these data and the assumptions upon which they are based.

Measures of Expenditures for Education

Total Annual Expenditures for Education. Total annual expenditures by the DOE and the various state and county agencies for educational purposes is probably one of the easiest and most quickly ascertained measures of funding support for education, but it is also one of the most difficult to interpret. The most important limitation of this particular measure is that it fails to take average daily membership[2] (ADM), which is also referred to as average daily enrollment, into consideration. It assumes ADM to be essentially constant from one year to the next or from one state to another, depending on whether analysis of funding support for education is being performed over time or between states. Because total annual expenditures for education vary in relation to ADM, a comparison of total annual expenditures would have to be based on the assumption that ADM was essentially constant over time or between states in order for the comparison to be useful. While minor variations in ADM over time or between states can probably be ignored, what constitutes a "minor" variation is subject to debate. One technique then for dealing with this limitation is to compute the ratio of total annual expenditures to ADM.

Expenditure Per Pupil in Average Daily Membership. While a numerical index based on total annual expenditures and ADM is conceptually appealing, it has certain limitations. For example, the expenditure per pupil in average daily membership assumes that all pupils have essentially the same basic needs. The implication is that it costs the same to provide

for the needs of all pupils, regardless of their grade level or whether they are classified as homebound and hospitalized, alienated, gifted and talented, poor English speakers, low achievers, or handicapped. While it would be more accurate to compute the expenditure per pupil in average daily membership based on the weighted number of full-time equivalent (FTE) pupils in each grade level and the weighted number of FTE pupils classified as homebound and hospitalized, alienated, gifted and talented, poor English speakers, low achievers, or handicapped, deriving an appropriate weight for each grade level and pupil classification without the benefit of empirical data would be controversial.

Although anticipated increases in ADM are used to justify increases in funding support for education, decreases in ADM may not necessarily result in decreases in funding support for education. The National School Boards Association (NSBA) explains this phenomenon in the following manner:[3]

> ...With fewer pupils, would it not seem that school expenditures should drop correspondingly?
>
> To the chagrin and bafflement of board members and taxpayers, it doesn't work out that way. Why? One simple answer is inflation. However, it is a bit more complex than that. Public schools also are operating with a number of fixed costs, most of which cannot be reduced substantially, even with smaller enrollments.
>
> Here is the way one board of education explained this phenomenon to its patrons:
>
> "Let's say a household has two adults, two children, and operating expenses of $10,000 per year. This includes mortgage, taxes, utility and phone bills, insurance, and other normal maintenance costs. If one child goes off to college or gets married, will household operating expenses go down by one-fourth? Not a chance! Even if a room is closed off, and operating expenses can be slightly decreased, most expenses will remain the same or be reduced far less than 25 percent.
>
> "The same holds true for a school district: Though schools may be closed, the dollars needed to operate the remaining facilities will not be reduced by much--and may well rise because of inflation."

Using the same rationale as the NSBA, it can be reasonably asserted that not all increases in ADM must result in increases in total annual expenditures for education. Consequently, the first important limitation of this particular measure concerns the weak association between ADM and total annual expenditures, i.e., a change in ADM does not necessarily affect total annual expenditures for education. The second important limitation concerns the generalized nature of the association between ADM and total annual expenditures. Besides ADM, inflation, expansion, quality improvements, and other factors affect total annual expenditures for education.

A technique for dealing with the first limitation is to compute the ratio of current operations expenditures to ADM. A technique for dealing with the second limitation is to measure the effects of inflation on the current operations of elementary-secondary schools and to control for these effects.

Current Operations Expenditures. Current operations expenditures are computed by subtracting capital outlays, debt service, and investment in equipment, from total annual expenditures. Investment in equipment, which is considered a capital outlay, is distinguished from replacement of equipment, which is considered a current operations expenditure.[4] The rationale for distinguishing capital outlays, debt service, and investment in equipment, from current operations expenditures is that the benefits from capital outlays, debt service, and investment in equipment, are realized over a period of several fiscal years while the benefits from current operations expenditures, with the possible exception of equipment replacement, are generally realized during one fiscal year. While the subtraction of capital outlays, debt service, and investment in equipment, from total annual expenditures decreases the actual ratio of annual expenditures to ADM, it does provide the basis for a relatively stable measure of funding support for education.

Although capital outlays, debt service, and investment in equipment, can be apportioned over a period of several fiscal years to minimize the decrease in the actual ratio of annual expenditures to ADM, determining the appropriate period of time is likely to be controversial. For example, the cost of a $3,000 computer could be apportioned over its expected life-span, which might be five years, to yield an annual expenditure of $600 a year rather than a one-time expenditure of $3,000. Likewise, a $15,000 truck with an expected life-span of ten years could be represented as a $1,500 a year expenditure rather than a one-time expenditure of $15,000.[5] While it is possible to apportion capital outlays, debt service, and investment in equipment, according to different schedules, keeping track of these different schedules--some of which may extend for more than twenty years--is highly impractical. One important cause of instability in a measure of funding support for education that includes capital outlays, debt service, and investment in equipment, would be the lack of constancy in capital outlays, debt service, and investment in equipment, from one year to another and from one state to another. Some likely explanations for this lack of constancy include occasional periods of fiscal austerity, shifting demographics, and expansion.

It is important to note that a measure of funding support for education based on current operations expenditures assumes that school buildings do not need to be replaced. It also implies that new schools do not need to be constructed as demographics change.

Inflation. Inflation, or the increase in price for the same good or service over time without a perceptible change in either the quality or quantity of items involved,[6] is practically indistinguishable from an increase in funding support for expansion and quality improvements. Failure to measure the effects of inflation on the current operations of elementary-secondary schools and to control for these effects limits the utility of a longitudinal analysis of funding support for education. While it is possible to earmark increases in funding support specifically for expansion and quality improvements, earmarking does not provide any insights into whether or not increases in funding support for other goods and services were sufficient to allow the purchase of the same goods and services required in previous years.

Although the use of a price index to measure the effects of price change over time without quality or quantity changes is conceptually appealing, it too has certain limitations.

According to Research Associates of Washington, publishers of the elementary-secondary school price index:[7]

> To the extent that classroom teachers and staff use different pedagogy, analyses, instruments, equipment, and materials from year-to-year, or that school districts employ different mixes of personnel and capital to accomplish objectives, use of a fixed-weight index fails to price current actual practices. Also, a price index does not account for changes in the mix of pupils; for example, an increase over time in the proportion of handicapped or exceptional students and the associated higher overall per-pupil costs would not be reflected in a price index series. Reweighting of the index is required when such changes result in large differences in the physical count proportions involved.
>
> Among other characteristics, a price index reflects a pattern of consumption for a group of consumers, not for the individual. A single national index only approximates the price changes for any single represented consumer. Price indexes are also slow to respond to changes in the consumer's pattern of consumption. These characteristics make price indexes least valuable to individual consumers whose buying patterns differ markedly from the norm and for those consumers who frequently alter what they purchase in response to changing needs and tastes. (Note that although the Consumer Price Index is based on the average buying pattern of "all urban consumers," this generalization is no hindrance to its widespread national use by consumers from vastly different socio-economic groups.)

Representative Expenditures. Variations in the costs of public services are to a cross-sectional (e.g., interstate) analysis of funding support for education as inflation is to a longitudinal (e.g., year-to-year) analysis of funding support for education. Variations in the costs of public services limit the utility of a cross-sectional analysis of funding support for education since variations in the costs of public services are practically indistinguishable from variations in the levels of public services. According to the United States Advisory Commission on Intergovernmental Relations (ACIR):[8]

> Differences in the prices governments pay to acquire the resources they use are second in importance only to differences in workloads in explaining the variation among the states in the costs of public service responsibilities. Unfortunately, no measure of the variation in average unit costs among the states is currently available from any source....

In comparison to inflation, which is routinely measured and can be controlled for by investigators, variations in the costs of public services are difficult to measure and control for. According to the ACIR:[9]

> The prices of the goods and services purchased by state and local governments vary with climate, with distance from the point

> of production, between rural and urban areas, and as a consequence of state-local government policy. For example, state laws relating to the compensation of public employees vary widely, with major consequences for the costs of public services. Cost differences traceable to the policies of state and local governments must be abstracted from, however.
>
> Too little information is available on the prices paid by the states and localities to permit estimation of a comprehensive index of the relative input costs of governments in all of the states. It is possible, however, to estimate the differences among the states in the cost of employee compensation. This cannot be accomplished by looking at actual payments to state and local employees because those payments reflect policy as well as underlying economic realities. Rather, the reference must be to the relative compensation state and local governments must pay to compete effectively in the market. The closest approximation to this magnitude is the statewide average earnings of full-time employees of a given age, sex, and level of educational attainment.

Using data from the 1980 census, the ACIR computed a quasi-index of relative input costs for the following public services: primary (elementary) and secondary education; higher education; public welfare; health and hospitals; highways; police and corrections; environment and housing; interest on general debt; governmental administration; and "all other". The index developed by the ACIR assumes that unit costs other than employee compensation are uniform around the nation.[10]

In its discussion on the estimation of representative expenditures, the ACIR stated that:[11]

> The representative expenditure approach parallels that of the RTS [Representative Tax System]. The crucial step is the identification of the best possible measure of the workload for each of the major categories of state-local expenditures. A state's workload for a service indicates its relative need for outlays on that function. To ensure that the workload measures are independent of the actual policies of the governments in a state, such program-client variables as enrollment in public schools and the number of people receiving welfare benefits are not used.
>
> * * *
>
> Given the workload measure for a function, the representative expenditure per unit of workload is calculated by dividing the total of actual state and local outlays for the service by the U.S. total for the workload measure. A state's representative expenditure for the function is then arrived at by multiplying the representative outlay per unit by the state's workload. The result is an estimate of how much it would cost the governments

in a state to provide the national-average (representative) level of the service.

* * *

The workload measure [for elementary and secondary education] is the weighted sum of three population groups: (1) children of elementary-school age (5-13) net of enrollment in private elementary schools, (2) youth of secondary-school age (14-17) net of private secondary enrollment, and (3) the population under 18 living in households with incomes below the poverty line. The weights are, respectively, 0.6, 1.0, and 0.25.

In its discussion of caveats and advice on interpreting the results of its analysis, the ACIR stated:[12]

Three points deserve special emphasis in interpreting the results of the analysis. First, no implication should be drawn that the representative outlays are in any sense correct or "needed" in any absolute sense. The estimates merely show how much it would cost each state to provide the national-average level of each service.

Second, the estimates assume that every government produces the representative level of each service with the same efficiency. In other words, a given level of spending per capita (adjusted for differences in compensation costs) buys the same level of service in every state. Hence no inferences about operating efficiency can be drawn from the relationship between actual spending for a function and the representative expenditures.

Third, and a closely related point, the estimates are silent on the issue of performance. A dollar of spending (adjusted for differences in unit costs) in one state is assumed to yield the same quantity and quality of a service as it does in every other state. Although we know that public services are not of equal quality per dollar spent everywhere in the nation, it is, regrettably, impossible to take this into account because credible measures of performance are not available.

In its discussion of the results of the analysis, the ACIR noted that:[13]

The state whose cost of implementing the representative level of total spending per capita [for public services] would be highest is Mississippi [Alaska]. The per capita outlays of the governments in that state would have to exceed the U.S. average by more than 13 [21] percent in order for it to provide the national-average level of public services. The per capita cost of the average level of services is lowest in New Hampshire (85 percent of the national average), followed closely by Rhode

Island (86), Massachusetts (87), Maine and Vermont (89), and Hawaii and Pennsylvania (90) [footnote deleted]. In addition to Mississippi, the indices of only three states (Alaska, Louisiana, and New Mexico) exceed 110 [footnote deleted].

The ACIR also noted that:[14]

It is important to remember that cost of living is more than a matter of the prices of consumer goods and services. Cost of living comprehends the mix of consumption as well as prices paid per unit. For example, transportation costs boost the prices of many consumer goods in Hawaii to levels significantly higher than those on the Mainland. However, the supremely temperate climate of the Islands, coupled with a lifestyle arguably more felicitous even than that of California, combine for a cost of living that may actually be lower than the U.S. average. Moreover, the climate and lifestyle of the Islands may be worth enough to many individuals that they are willing to accept lower real cash incomes in exchange for the nonmonetary benefits.

Elucidating further on its findings, the ACIR noted that:[15]

...The values of the [labor-input-cost] index range from a low of 77 in South Dakota and Maine to 134 in Alaska [footnote deleted].

* * *

Alaska's value is no surprise, but Michigan's position as the state with the second highest value (112) may be. This result is probably more attributable to the strength of the union movement in the state than to the cost of living. Whether earnings are high in Michigan because of the influence of unions or the cost of living is not important for purposes of the present analysis, however. The index of unit labor costs indicates that the costs of compensation for the public employees of state and local governments in the state are likely to be well above the national average.

Another surprise may be Hawaii, with an index value of 96. Conventional wisdom (confirmed by BLS [Bureau of Labor Statistics] estimates and a number of studies in the 1970s) has long identified Hawaii as the state with a cost of living second only to that of Alaska [footnote deleted]. Two observations are in order. First, it may be that the cost of living [in] Hawaii is not as high as earlier estimates indicated because the market basket of goods and services used by the BLS in preparing the estimates for the family budget series for Honolulu failed to account adequately for the special characteristics of the life style in the state. The more important reason for the plausibility of the estimate that average earnings in Hawaii are only 96 percent of the U.S. average, however, is that, as noted

> earlier, the nonmonetary benefits of living and working in the state make people willing to accept lower real cash incomes than they would demand for comparable work elsewhere.

With respect to primary and secondary education, Hawaii's index of the estimate of representative state-local expenditures per capita adjusted for input-cost differences is 86.[16] The State's labor-input-cost index for primary and secondary education is 97.[17] Although tentative, the findings of the ACIR tend to dispute the basis for arguing that Hawaii's rank according to per pupil expenditure would drop from thirty-fifth to fortieth if the State's per pupil expenditure were adjusted for cost of living. The DOE has used this argument to emphasize the disparity between Hawaii's per pupil expenditure, the national average per pupil expenditure, and the per pupil expenditure of Alaska, which is ranked first (i.e., highest) among the fifty states and District of Columbia.[18]

While other interstate data, such as pupil-teacher ratios, per capita direct school expenditures, and percentages of public education expenditures to total state operating expenditures, can be used to distinguish qualitatively between variations in the costs of public services and variations in the levels of public services, the lack of a single, composite index of funding support for education makes it difficult for laypersons to distinguish systematically between variations in the costs of public services and variations in the levels of public services. It should be emphasized that the lack of such a composite index does not mean that variations in the costs of public services cannot be distinguished systematically from variations in the levels of public services; rather, it means that it is difficult for laypersons to distinguish between variations in the costs of public services and variations in the levels of public services.

Pupil-Teacher Ratio. As a proxy measure of funding support for education, the ratio of pupils to teachers[19] suffers from the same conceptual limitations as expenditure per pupil in average daily membership. A pupil-to-teacher ratio assumes that teachers provide essentially the same kind of service to all pupils. Also, it implies that one teacher can provide for the needs of "x" number of pupils regardless of their grade level or whether they are classified as homebound and hospitalized, alienated, gifted and talented, poor English speakers, low achievers, or handicapped. While it would be more accurate to compute a pupil-to-teacher ratio based on the weighted number of FTE pupils in each grade level and the weighted number of FTE pupils classified as homebound and hospitalized, alienated, gifted and talented, poor English speakers, low achievers, or handicapped, deriving an appropriate weight for each grade level and pupil classification without the benefit of empirical data would, again, be controversial.

Methods of Comparing Expenditures for Education

Proportions. The primary limitation with methodologies that utilize proportions to illustrate a gain or loss in funding support for education over time is that proportions are always part of something and can never exceed the total, which is 1.0. According to Guilford:[20]

> ...Proportions are always parts of something and can never exceed the total, which is 1.0. They have no place in expressing gain or loss, though presumably losses could be expressed in terms of

> proportions if we chose, for losses cannot exceed the total; but we never use a proportion for this purpose.

A more useful method of illustrating the gain or loss in funding support for education might be to compute the percent change from one year to another. Proportions are most useful in making cross-sectional comparisons of funding support for education.

Percent Change From a Base Year. The primary limitation with methodologies that compute the percent change in funding support for education from a base year is the inability of these methodologies to usefully display exponential relationships (i.e., non-linear or curvilinear relationships in the general form $y = a[c^{bx}]$) without resorting to linearizing transformations.[21] Simple exponential relationships are created when successive increases in funding support for education (e.g., increases for the 1991-1992, 1992-1993, and 1993-1994 fiscal years) are computed by applying a constant rate of increase (e.g., 5 percent) to funding support in the preceding year (e.g., the 1990-1991, 1991-1992, and 1992-1993 fiscal years, for the 1991-1992, 1992-1993, and 1993-1994 fiscal years, respectively) rather than funding support in a base year (e.g., the 1990-1991 fiscal year). This operation is conceptually analogous to the manner in which budgets are increased to account for the effects of inflation and operationally analogous to the manner in which interest is compounded. In their nonlinearized states, exponential relationships tend to exaggerate the rate at which funding support for education may be increasing over time.

Rank Order and Changes in Rank Order. The primary limitation with methodologies that use rank order to make cross-sectional comparisons of funding support for education is that rank order reveals only the serial arrangement of the states and nothing more. Rank order does not reveal the distance between the states and a gain or loss of one unit in one part of the scale cannot be assumed to be equal to a gain or loss of one unit in any other part of the scale.[22] Consequently, changes in rank order over time reveal nothing about the gain or loss in funding support for education. On a related note, the states have very little control over changes in their rank order. Changes in rank order may occur without regard to the gain or loss in funding support for education since rank order is a relative measurement and totally independent from internal and external standards of assessment.

Comparing Rates of Change. The primary limitation of methodologies that compare the rate of change in one measure with the rate of change in another measure over time is that the comparison must have either intrinsic or conventional meaning in order to yield useful information. Comparing the rate of change in one measure with the rate of change in another measure essentially assumes that both measures are subject to the same external forces and that both measures should respond in similar fashion to these forces. Although methodologies that compare the rate of change in one measure with the rate of change in another measure can be used to illustrate how a particular situation may have evolved over time, these methodologies do not necessarily place the situation in a useful perspective (e.g., comparing the rate of change in your weight to the rate of change in your height can tell you that your weight increased faster than your height over a period of five years, but not necessarily whether you are "fat" or "skinny").

Comparability of the National Center for Education Statistics' Expenditure Data

According to the DOE:[23]

> As important as it is and has been to the United States for the past 200 years, information on financing public education is neither consistent nor easily interpretable. This is due, in part, to different funding mechanisms for our nation's school systems, but it is also due to the differing cost accounting procedures applied across states as well as across school districts within states.
>
> The National Center for Education Statistics (NCES) has made some progress, particularly since 1989, in collecting school finance data that is more fairly comparable across states. Data elements included in the annual Common Core of Data, *Financial Survey* now appear to be more clearly defined and systematically reported by state education agencies as a result of considerable efforts to crosswalk accounting practices in different states that adhere to any one of four versions of NCES accounting handbooks. Still, even after investing rather heavily over the past few years, the federal government's attempt to compile state-by-state comparisons on education revenues and expenditures remain questionable for at least eight states [citation deleted].

The Bureau notes that while NCES expenditure data are the most accurate data available at this time, there is a recognized need to improve their comparability. Investigators should be mindful of the limitations of the NCES data when designing their own methodologies and should interpret their results accordingly.

Summary

Although various measures of expenditures for education can be computed quickly and easily from the available data, factors such as ADM, weighted number of FTE pupils, expenditures for capital outlays, debt service, and investment in equipment, inflation, variations in the costs of public services, and the comparability of the data, make it extremely difficult for investigators to interpret these measures. Likewise, while the available data lend themselves quickly and easily to various methods of comparing expenditures for education, methodologies that utilize proportions, percent change from a base year, rank order and changes in rank order, and comparisons of rates of change, are limited by the intrinsic nature of proportions, curvilinear relationships, serial arrangements, and causal associations, respectively.

Investigators should be mindful of these limitations and the important assumptions upon which various measures and methodologies are based. These limitations and assumptions should be discussed in the educational literature and, if time permits, subjected to rigorous analyses.

To loosely paraphrase Michael, Boyce, and Wilcox,[24] a good investigator can see the flaws in measures, methodologies, and data, but is not hopelessly paralyzed by them.

Unflawed measures, methodologies, and data are as improbable as a germ-free handshake. Flawed measures, methodologies, and data are an inherent part of scientific research. The challenge is to know what these flaws are, where they are, and how to contain the damage they do.

ENDNOTES

1. Umberto Eco, The Name of the Rose (New York: Warner Books, Inc., 1984), p. 110.

2. "Average daily membership" or "ADM" means the aggregate membership of a school during a reporting period (normally a school year) divided by the number of days school is in session during this period. Only days on which the pupils are under the guidance and direction of teachers should be considered as days in session. The average daily membership for groups of schools having varying lengths of terms is the average of the average daily memberships obtained for the individual schools. U.S., Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1990, NCES 91-660 (Washington, D.C.: February 1991), p. 435.

   ADM should not be confused with "membership", which means the count of students on the current roll taken on the school day closest to October 1 by using either 1) the sum of original entries and reentries minus total withdrawals, or 2) the sum of the total present and the total absent. U.S., Department of Education, National Center for Education Statistics, Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989, NCES 91-035, Data Series: DR-CCD-89/90-2.1 (Washington, D.C.: April 1991) (hereinafter cited as "Aggregate Data for School Year 1989-1990"), p. 5.

3. National School Boards Association, Becoming A Better Board Member: A Guide to Effective School Board Service (Virginia: 1982), p. 186.

4. Research Associates of Washington, Elementary-Secondary School Price Indexes: 1990 Update, 8th ed. (Washington, D.C.: 1990) (hereinafter cited as "School Price Indexes"), p. 27.

5. See Henry Levin, Cost-Effectiveness: A Primer, Northwest Regional Educational Laboratory, New Perspectives in Education series, vol. 4 (California: Sage Publications, Inc., 1983), pp. 67-72, regarding an alternative method of estimating annual equipment costs based on depreciation and the interest on the remaining or undepreciated value of the same (opportunity costs of the undepreciated investment).

6. Research Associates of Washington, "School Price Indexes", supra note 4, p. 3.

7. Research Associates of Washington, "School Price Indexes", supra note 4, p. 13.

   See Chapter 3, for a more detailed discussion of inflation, the use of price indexes, the theory and design of price indexes, and the School Price Index.

8. U.S., Advisory Commission on Intergovernmental Relations, Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity, M-174 (Washington, D.C.: December 1990) (hereinafter cited as "Representative Expenditures"), p. 16.

9. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, pp. iii-iv.

10. According to the ACIR:

> The unavailability of data relating to the other factor costs of state and local governments means that those costs must be assumed, for purposes of this analysis, to be uniform among the states. This is not an unreasonable assumption for a significant portion of the purchases of those governments--particularly for such goods as motor vehicles, computers, and related equipment and supplies that are traded in competitive national markets. Uniformity is a questionable assumption, however, for energy and land costs, among others [footnote deleted].

U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 95.

The premise of the ACIR's approach is that differences in the average earnings of full-time employees--controlling for sex, age, and education--are a good indicator of relative unit labor costs for all employers, including governments, in an area or state. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 16.

11. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. iv.

According to the ACIR:

> The weights [for the elementary and secondary education workload measure] (1) adjust for the lower cost per student of elementary education, which is assumed to be 60 percent of the cost per student of secondary education, and (2) allow for the higher cost of the compensatory and remedial programs that pupils from poverty households tend to require more often than pupils from other households [footnote deleted].
>
> Population data are used because enrollment and average-daily-attendance (ADA) data are strongly influenced by the attendance requirements of state law. Variations in dropout rates account for much of the difference between school-age population and enrollment. Use of enrollment data would imply that states with depressed enrollments because of high dropout rates have lower need for expenditures for public education. Moreover, state definitions of enrollment and attendance differ, raising questions about the comparability of the available data. On balance, the influence of state policy on enrollment and ADA makes them both poor candidates for a workload measure.
>
> Adjustment for enrollment in private schools seems advisable because the importance of private institutions varies significantly among the states. In 1987, just under 12 of every 100 kids of elementary-school age were enrolled in private schools. The proportions in individual states ranged from 192 percent of the national average in Delaware to less than 8 percent in Utah [footnote deleted]. Private schools, in fact (as their proponents often point out), diminish the number of pupils that must be provided for in the public system.
>
> The argument against adjustment for private enrollment is that it is affected by the quality of public programs, a matter of policy from which the workload measure should abstract. Though the quality of public schools is undoubtedly a factor in private enrollment, considerations other than current educational policy (family tradition and the religious, ethnic, and racial mix of the population) are probably much more important in many areas of the country. In view of these considerations, subtraction of private enrollment from school-age population would seem to be desirable in arriving at a workload measure for elementary and secondary education.

U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 10.

12. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. v.

13. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 21.

The data indicate that Alaska, rather than Mississippi, is the state whose cost of implementing the representative level of public services would be highest. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 22.

14. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 95.

15. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 100.

16. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 22.

17. U.S., Advisory Commission on Intergovernmental Relations, "Representative Expenditures", supra note 8, p. 103.

18. Hawaii, Department of Education, "Funding Support for Public Education in Hawaii" (February 13, 1991), p. 3.

19. "Pupil-teacher ratio" means the enrollment of pupils at a given period of time, divided by the full-time equivalent number of classroom teachers serving these pupils during the same period. U.S., Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1990, supra note 2, p. 444.

"Classroom teacher" means a staff member assigned the professional activities of instructing pupils in self-contained classes or courses, or in classroom situations. Usually expressed in full-time equivalents. U.S., Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1990, supra note 2, p. 436.

20. J.P. Guilford, Fundamental Statistics in Psychology and Education, 3rd ed. (New York: McGraw-Hill Book Company, Inc., 1956), p. 17.

21. See Samprit Chatterjee and Bertram Price, Regression Analysis By Example (New York: John Wiley and Sons, Inc., 1977), pp. 29-31, regarding linearizing transformations.

22. J.P. Guilford, Fundamental Statistics in Psychology and Education, supra note 20, p. 27.

23. Hawaii, Department of Education, "Working Paper #6: Review and Analysis of Education Revenues and Expenditures: Proposals for establishing several key process indicators" (Draft)(June 1991), p. 1.

24. Max Michael, W. Thomas Boyce, and Allen J. Wilcox, Biomedical Bestiary: An Epidemiologic Guide to Flaws and Fallacies in the Medical Literature (Massachusetts: Little, Brown and Company, 1984), p. xiv.

CHAPTER 3

INFLATION AND CURRENT OPERATIONS EXPENDITURES

Introduction

> ...Your Committee is concerned that while a significant portion of the State's resources and increasingly larger amounts are appropriated each year to fund public schools, [emphasis added] there are still claims and criticisms that not enough funds have been provided to the Department of Education.[1]

The purpose of this chapter is to provide the working bases for an analysis of the amounts expended for education. Specifically, this chapter examines the relationship between inflation and current operations expenditures, and how current operations expenditures for education have changed over time. This chapter also discusses the theory and design of the school price index developed by Research Associates of Washington specifically for the purpose of measuring the effects of inflation on the current operations of elementary and secondary schools.

Inflation

Inflation is defined by Research Associates of Washington, publishers of the elementary-secondary school price index, as:[2]

> ...[A]n increase in price for the same good or service. The increase occurs without perceptible change in either the quality or quantity of the items involved. Measurements of inflation must insure that exactly the same goods and services are priced each year. The occurrence of any improvement in the quality of manufactured goods is accounted for by "stripping out" the price increase due to the associated added production costs, or by "linking" the new higher price series to the old progression. The quality of services may be the current "state of the art" which generally improves over time but is the only product available for purchase. Schools, for example, cannot buy "last year's" teachers and staff. The national mean salary of classroom teachers thus represents the price of a "fixed" average available teacher quality. If a school district increases its teacher salaries by more than the change in this national average, the additional payment is considered an expenditure for quality improvement exceeding what is necessary to offset inflation.
>
> Inflation should not be confused with costs or expenditures. Expenditures are the product of price times quantity. Thus the costs or expenditures for instruction equal, in part, salaries multiplied by the number of teachers. Expenditures are voluntary to the extent that both salary and staffing level are set by the

school district. Inflation, on the other hand, is an exogenous market price condition affecting single goods and service items. These prices are generally beyond the control of any individual school district. Even teacher salaries, while individually set by the districts, are dependent on regional and a national academic labor market and competition from private industry. And school districts must attempt to maintain if not improve the purchasing power of their salaries by increases that keep up with the cumulative change in the CPI.

Use of Price Indexes

According to Research Associates of Washington, a price index compiled and published regularly can serve the following uses:[3]

> Index values may be projected into the future to estimate the degree of change in expenditures that will be necessitated by anticipated price changes. If price increases are expected, the projected index values are used to "inflate" expected "real resource" needs to equal future funding requirements in actual dollars.
>
> * * *
>
> Past expenditures may be compared with movements in a price index to ascertain whether spending has kept pace with price level changes. Adjusting expenditures by an appropriate price index to convert "actual" or "current" dollars to "constant" dollars permits comparison over time of the real purchasing power of funding levels.
>
> Similarly, dollar incomes may be "deflated" by a price index to identify trends in the level of real purchasing power of funding by various sources.
>
> Price indexes may be used to provide automatic "inflation adjustment" of various administrative and contractual transactions. The price charged for a particular service, for example, may be "tied" to input prices or the "cost of labor" as measured by an appropriate price index.

Theory and Design of Price Indexes

According to Research Associates of Washington:[4]

> A price index measures the effects of price change and price change only, as reflected by differences in the overall price level of a fixed group of items. The procedure in calculating the index is to measure the price level of purchased items each

year, comparing the aggregate amount paid to that in the base period. The amount and quality of the selected commodities that comprise the market basket being indexed must remain constant so that only the effects of price changes are reflected. The quantities represent not only annual consumption of the specific sample items actually priced by the index, but also consumption of related items for which prices are not obtained, so that the total cost of the market basket represents the consumer's total spending for goods and services. Under these restrictive conditions, the change in price index values from year-to-year may be interpreted as the change in dollars required to offset the effects of inflation in buying the same kinds and amounts of goods and services previously purchased.

* * *

The most common misuse of price indexes is applying them to data or situations they were not designed to serve. The need to convert actual or current dollar figures to a constant dollar basis, and the easy mathematics involved, tempt many persons to use any available price index for the purpose, rationalizing their choice in the mistaken belief that the prices of all goods and services in the economy move more or less uniformly. While some long term price trends may be similar, there is considerable variation in yearly values among the various indexes. Thus, an index designed to measure the overall price change in a given set of items cannot be applied indiscriminately to adjust for inflation in other item sets.

As a case in point, the readily available Consumer Price Index (CPI) is often used in the field of education to convert per-student expenditures from an actual to a supposed constant dollar basis. However, the goods and services priced by the CPI are those purchased by families of city wage earners and salaried clerical workers, items which differ markedly from the goods and services employed for education. The bulk of education purchases are for personnel, mainly faculty, whose salary increases for long periods have been different than those for the classes of commodities represented heavily in the CPI. Thus, application of the CPI to the finances of educational institutions in any given year is likely to result in erroneous and misleading under or over-adjustment of revenues or expenditures that do not reflect dollars of constant institutional purchasing power.

The School Price Index

According to Research Associates of Washington, the School Price Index (SPI) measures:[5]

> ...[T]he average relative level in the prices of goods and services purchased by elementary-secondary schools for current expenses. These expenses include expenditures for administration, instruction, plant operation and maintenance, fixed charges, attendance and health services, and transportation and food services. Capital outlay, debt service and investment in equipment which is depreciated are not [emphasis added] priced by the SPI.

Current Operations Expenditures

Equipment and Motor Vehicles. Expenditure data for equipment and motor vehicles, which are included as Appendix A, were extracted from the June 1989 and June 1990 monthly expenditure reports of the DOE,[6] and unpublished data prepared by the DOE for the fiscal year 1988-1989 and fiscal year 1989-1990 National Public Education Financial Surveys conducted by the National Center for Education Statistics (NCES).[7] Using accounting codes and unpublished data from the fiscal year 1988-1989 and fiscal year 1989-1990 annual financial reports of the DOE as guides, the Bureau categorized these expenditures according to "administration", "instruction", "support services", and "food services".[8]

Although the DOE defines equipment as any article having a useful life of one year or more and costing $50 or more,[9] Research Associates of Washington defines equipment as:[10]

> ...[I]nstruments, machines, apparatus, and sets of articles that retain their original shape and appearance with use and are nonexpendable; that is, if they are damaged, it is usually more feasible to repair the article than to replace it with an entirely new unit. Further, equipment usually represents an investment of money that makes it feasible and advisable to capitalize the item. Expenditures for equipment so defined are part of a school's capital outlay or plant fund budget; however, replacement of equipment is considered a "current operations" expenditure [emphasis added].
>
> The equipment replacement category is organized into two components--replacement of student transportation vehicles, and replacement of plant equipment [emphasis added].

While these differences cannot be reconciled from the abovementioned sources of data, the Bureau does not believe that the differences constitute a major source of error with regard to the use of the SPI to measure the effects of inflation on the current operations of elementary-secondary schools. Property-related expenditures by the Department of Accounting and General Services (DAGS) for student transportation amounted to $51,532 and $23,448, during fiscal year 1988-1989 and fiscal year 1989-1990, respectively.[11] Likewise, property-related expenditures by the DAGS for the maintenance of school plants amounted to $1,708,259 and $2,344,047, during fiscal year 1988-1989 and fiscal year 1989-1990, respectively.[12] Additionally, property-related expenditures by the DOE for physical plant operations and maintenance amounted to $278,488 and $355,897, during fiscal year 1988-1989 and fiscal year 1989-1990, respectively.[13] For the purposes of this study, these property-related expenditures were considered replacement of equipment and, consequently, current operations expenditures.

Although the DOE considers expenditures for textbooks and library books as expenditures for equipment (i.e., "C" expenditures), these expenditures were also considered current operations expenditures for the purposes of this study.[14] Because the Bureau was unable to determine how much of the $8,652,458 and $8,453,807 expended for education administration by "other government agencies" during fiscal year 1988-1989 and fiscal year 1989-1990, respectively, were for equipment and motor vehicles, the entire amounts were considered current operations expenditures for the purposes of this study.[15]

Employee Benefits. Expenditure data for state government contributions to social security, retirement funds, insurance, and medical plans, which are included as Appendix B, were extracted from the fiscal year 1988-1989 and fiscal year 1989-1990 expenditure reports of the DOE for personal services.[16] Using accounting codes and unpublished data from the fiscal year 1988-1989 and fiscal year 1989-1990 annual financial reports of the DOE as guides, the Bureau categorized these expenditures according to "administration", "instruction", "support services", and "food services".[17]

Although the categorization and apportionment of expenditures for state government contributions to social security, retirement funds, insurance, and medical plans, has no bearing on the use of the SPI in this study, the Bureau notes that federal government contributions to Social Security, retirement funds, insurance, and medical plans, are apportioned according to "administration", "instruction", "support services", and "food services", while state government contributions are not. This inconsistency makes meaningful comparisons between the amounts expended for "administration", "instruction", "support services", and "food services", difficult--if not practically impossible--since state government contributions to social security, retirement funds, insurance, and medical plans, amounted to $58,569,801 and $54,275,691 during fiscal year 1988-1989 and fiscal year 1989-1990, respectively.

Current Operations Expenditures Data. Current operations expenditures data for "administration", "instruction", "support services", "incidental employee benefits" (i.e., workers' compensation and unemployment compensation payments), and "food services", which are included as Table 2, were extracted from the fiscal year 1988-1989 and fiscal year 1989-1990 annual financial reports of the DOE[18] and combined with expenditure data for equipment and motor vehicles, and employee benefits.

Current operations expenditures for fiscal year 1988-1989 and fiscal year 1989-1990, displayed in current dollars and constant (1990) dollars, are included as Table 1.[19] Per pupil expenditures for fiscal year 1988-1989 and fiscal year 1989-1990 were computed using average daily enrollment and current operations expenditures in constant (1990) dollars. Additionally, the percent change in per pupil expenditures from fiscal year 1988-1989 to fiscal year 1989-1990 was computed.[20]

Results

Assuming that the budget weights used to compile the School Price Index are essentially identical to the proportions of the physical count of items purchased by elementary-secondary schools in Hawaii, per pupil current operations expenditures increased 2.0 percent from fiscal year 1988-1989 to fiscal year 1989-1990, after inflation.[21] If the effects of inflation are not taken into account, per pupil current operations expenditures increased 7.9 percent from fiscal year 1988-1989 to fiscal year 1989-1990.

Although the following comparisons lack utility, total annual expenditures for education (not adjusted for inflation or ADM) increased 11.3 percent from fiscal year 1988-1989 ($699,458,370) to fiscal year 1989-1990 ($778,406,934) and current operations expenditures (not adjusted for inflation or ADM) increased 8.7 percent from fiscal year 1988-1989 ($652,301,040) to fiscal year 1989-1990 ($709,172,912). If ADM is taken into consideration, then per pupil total annual expenditures for education (not adjusted for inflation) increased 10.4 percent from fiscal year 1988-1989 (based on 167,666 pupils) to fiscal year 1989-1990 (based on 169,031 pupils) and per pupil current operations expenditures (not adjusted for inflation) increased 7.9 percent from fiscal year 1988-1989 to fiscal year 1989-1990.

Discussion

Whether a 2.0 percent increase in per pupil current operations expenditures from fiscal year 1988-1989 to fiscal year 1989-1990 is "substantive" or "nominal" depends, arguably, on three factors. They are:

(1) The Legislature's goals and objectives for education, e.g., "What things do you want to accomplish for education and how much will these things cost?"

This particular factor encompasses other important considerations such as the size and degree of certain needs, the desired effects to and effects of programs designed to address these needs, and what other states may be expending to meet these needs (which is not to say that Hawaii must expend the same amount to meet a similar need being addressed by another state).

(2) The Legislature's timeframe for achieving these goals and objectives, e.g., "How soon do you want to accomplish these things?"

(3) The Legislature's ways and means of achieving these goals and objectives, e.g., "How much are you willing to spend each year to accomplish these things?"

Although the Legislature has expressed concern about the "increasingly larger amounts [that] are appropriated each year to fund public schools",[22] knowing that per pupil current operations expenditures increased by 2.0 percent from fiscal year 1988-1989 to fiscal year 1989-1990 is not a particularly meaningful piece of data unless the Legislature has determined what things it wants to accomplish for education and how much these things are expected to cost, how soon it wants to accomplish these things, and how much it is willing to spend each year to accomplish these things.

The Bureau believes that the answers to these questions can only come forth through the joint efforts of the Legislature and the DOE. The retrieval of necessary data and the examination of causal relationships (of which there are precious few) to determine such factors as cost cannot be accomplished by the Legislature without the assistance of the DOE. Likewise, the implementation of programs to achieve the DOE's goals and objectives for education cannot be accomplished by the DOE without the support of the Legislature.

Table 1

Change in Per Pupil Expenditure

	Fiscal Year 1988-1989	Fiscal Year 1989-1990
Current operations expenditures in current dollars	652,301,040	709,172,912
Elementary-secondary school price indexes		
100 = 1983	139.5	147.4
100 = 1990	94.6	100.0
Current operations expenditures in constant (1990) dollars	689,535,983	709,172,912
Average daily enrollment	167,666	169,031
Per pupil expenditure based on average daily enrollment and current operations expenditures in constant (1990) dollars	4,113	4,196
Percent change in per pupil expenditure from previous year	--	2.0

Table 2

Current Operations Expenditures in Current Dollars*

	Fiscal Year 1988-1989	Fiscal Year 1989-1990
ADMINISTRATION		
Personal services	33,438,077	37,677,359
Supplies and equipment	11,924,619	15,703,724
Other government agencies	8,652,458	8,453,807
Equipment and motor vehicles	<1,437,188>	<4,083,361>
Government contribution to social security, retirement funds, insurance and medical plan	4,899,092**	4,634,047
Total Adminstration	57,477,058	62,385,576
INSTRUCTION		
Personal services	345,276,097	384,612,812
Texbooks	2,441,901	3,665,149
Library books	1,173,048	1,530,500
Instructional equipment	6,687,694	10,889,732
Audio visual supplies and equipment	749,287	1,584,187
Classroom supplies	14,379,095	18,203,295
Other instructional expenses	13,241,063	15,313,367
Equipment and motor vehicles	<7,619,693>	<12,605,085>
Government contribution to social security, retirement funds, insurance and medical plan	46,183,598	42,345,867***
Total Instruction	422,512,090	465,539,824
SUPPORT SERVICES		
Counseling	12,137,501	13,327,233
Safety and security services	3,027,278	3,083,102
Health services	12,813,069	12,038,042
Pupil transportation services	19,907,172	21,176,550
Operation of school plants	32,522,624	34,663,385
Maintenance of school plants	41,874,055	41,769,455
Equipment and motor vehicles	<79,627>	<127,408>
Government contribution to social security, retirement funds, insurance and medical plan	5,440,992	5,158,022
Total Support Services	127,643,064	131,088,381

INCIDENTAL EMPLOYEE BENEFITS

Workers' compensation and unemployment compensation payments	2,365,010	4,569,777

FOOD SERVICES

Personal services	19,393,315	21,299,066
Supplies and equipment	21,032,767	23,665,759
Equipment and motor vehicles	<168,383>	<1,513,226>
Government contribution to social security, retirement funds, insurance and medical plan	2,046,119	2,137,755
Total Food Services	42,303,818	45,589,354

* All figures are rounded to the nearest dollar.

** Increased by one dollar to correct for differences caused by rounding.

*** Decreased by three dollars to correct for differences caused by rounding.

ENDNOTES

1. Conference Committee Report No. 75 on House Bill No. 139, Sixteenth Legislature, Regular Session of 1991, p. 10.

2. Research Associates of Washington, Elementary-Secondary School Price Indexes: 1990 Update, 8th ed. (Washington, D.C.: 1990) (hereinafter cited as "School Price Indexes"), p. 3.

   Readers seeking informed counsel on the use of the elementary-secondary school price index should contact Kent Halstead of Research Associates of Washington at 2605 Klingle Road N.W., Washington, D.C. 20008.

3. Research Associates of Washington, "School Price Indexes", supra note 2, pp. 9-11.

4. Research Associates of Washington, "School Price Indexes", supra note 2, pp. 11-14.

5. Research Associates of Washington, "School Price Indexes", supra note 2, p. 15.

6. Hawaii, Department of Education, "Monthly Expenditure Report, June 1989" (no date), 19 pp.

   Equipment expenditures and motor vehicle expenditures are designated as "C" and "M" expenditures, respectively, in the monthly expenditure reports of the DOE.

7. Hawaii, Department of Education, "Unpublished Data Prepared for the Fiscal Year 1988-1989 National Public Education Financial Survey Conducted by the National Center for Education Statistics", CCDEXP.89 (August 9, 1990) (hereinafter cited as "Unpublished NCES Data for Fiscal Year 1988-1989"), 4 pp.

   Hawaii, Department of Education, "Unpublished Data Prepared for the Fiscal Year 1989-1990 National Public Education Financial Survey Conducted by the National Center for Education Statistics", CCDEXP.90 (December 11, 1990) (hereinafter cited as "Unpublished NCES Data for Fiscal Year 1989-1990"), 4 pp.

   The National Public Education Financial Survey refers to "equipment" and "motor vehicles" as "property". For the purposes of this study, the two classifications appear to be essentially synonymous with one another. U.S., Department of Education, National Center for Education Statistics, "The National Public Education Financial Survey, Fiscal Year 1990", OMB Number 1850-0067 (Washington, D.C.: no date), p. 5.

8. Hawaii, Department of Education, "Unpublished Data From the Fiscal Year 1988-1989 Annual Financial Report of the Department of Education" (no date) (hereinafter cited as "Unpublished Data from Fiscal Year 1988-1989 Annual Financial Report"), unbound folder of unnumbered ledger sheets.

   Hawaii, Department of Education, "Unpublished Data From the Fiscal Year 1989-1990 Annual Financial Report of the Department of Education" (no date) (hereinafter cited as "Unpublished Data from Fiscal Year 1989-1990 Annual Financial Report"), unbound folder of unnumbered ledger sheets.

   Hawaii, Department of Education, "Section II, Accounting Codes Business Office Handbook, Volume I" (May 1990) (hereinafter cited as "Accounting Codes"), 143 pp.

   The SPI was designed to measure the average relative level in the prices of goods and services

purchased by elementary-secondary schools for current expenses and not the average relative level in the prices of goods and services purchased by elementary-secondary schools for "administration", "instruction", "support services", or "food services". Applying the SPI to individual expenditures for "administration", "instruction", "support services", and "food services", assumes that there are goods and services which are common to "administration", "instruction", "support services", and "food services". Furthermore, it assumes that these goods and services are purchased in essentially identical quantities, regardless of whether they are purchased for "administration", "instruction", "support services", or "food services".

9. Interviews with Arthur Iseri, Accountant, Department of Education, Office of Business Services, Accounting Section, Honolulu, Hawaii, July 1991.

10. Research Associates of Washington, "School Price Indexes", supra note 2, pp. 27-28.

11. Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1988-1989", supra note 7, p. 1.

Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1989-1990", supra note 7, p. 1.

12. Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1988-1989", supra note 7, p. 1.

Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1989-1990", supra note 7, p. 1.

13. Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1988-1989", supra note 7, p. 1.

Hawaii, Department of Education, "Unpublished NCES Data for Fiscal Year 1989-1990", supra note 7, p. 1.

14. Expenditures for free textbooks to students and library books are components of the School Price Index and, consequently, considered current operations expenditures. Research Associates of Washington, "School Price Indexes", supra note 2, p. 28.

15. Hawaii, Department of Education, Financial Report, July 1, 1988 - June 30, 1989 (December 1989) (hereinafter cited as "Fiscal Year 1988-1989 Financial Report"), p. 22.

Hawaii, Department of Education, Financial Report, July 1, 1989 - June 30, 1990 (December 1990) (hereinafter cited as "Fiscal Year 1989-1990 Financial Report"), p. 22.

16. Hawaii, Department of Education, "Expenditure Report for Personal Services - As of June 30, 1989", PRE321 (no date), 3 pp.

Hawaii, Department of Education, "Expenditure Report for Personal Services - As of June 30, 1990", PRE321 (no date), 3 pp.

17. Hawaii, Department of Education, "Unpublished Data from Fiscal Year 1988-1989 Annual Financial Report", supra note 8.

Hawaii, Department of Education, "Unpublished Data from Fiscal Year 1989-1990 Annual Financial Report", supra note 8.

Hawaii, Department of Education, "Accounting Codes", supra note 8.

18. Hawaii, Department of Education, "Fiscal Year 1988-1989 Financial Report", supra note 15.

Hawaii, Department of Education, "Fiscal Year 1989-1990 Financial Report", supra note 15.

19. Current (1989) dollars were converted to constant (1990) dollars by taking the quotient of current (1989) dollars and the SPI for 1989. The SPI was converted from 100 = 1983 (1983 dollars) to 100 = 1990 (1990 dollars) by taking the quotient of the SPI for 1990 (147.4) and 1.474, and the quotient of the SPI for 1989 (139.5) and 1.474. Using 1.474 has the net effect of dividing the SPI by 147.4 and multiplying that quantity by 100.

20. Percent change was computed using the following formula: 100(y-x)/x, where "x" equalled the fiscal year 1988-1989 per pupil expenditure and "y" equalled the fiscal year 1989-1990 per pupil expenditure.

21. Although procedures for compiling jurisdictionally tailored school price indexes were discussed by Research Associates of Washington, the compilation of a school price index specific to Hawaii was deemed to be beyond the scope of this study and the expertise of the Bureau. While the compilation of such an index is conceptually appealing, it is not without substantial drawbacks. According to Research Associates of Washington, the strongest argument against employing differential price series is that it would conceal quality differences. Research Associates of Washington, "School Price Indexes", supra note 2, pp. 17 and 20-21.

For the purposes of this study, the Bureau assumed that differences in the weights assigned to various sub-components of the SPI, such as the national utilities subindex, would have little or no effect on the overall applicability of the SPI to Hawaii. According to Research Associates of Washington, the national utility subindex is a composite including both natural gas and oil, which are seldom used in combination for heating. Research Associates of Washington suggest that school districts reweight the utilities index to reflect their own use of these fuel alternatives. Research Associates of Washington, "School Price Indexes", supra note 2, p. 17.

According to Research Associates of Washington:

> The weights assigned the various items priced represent their relative importance in the current fund expenses budget, as of 1982-83 [cross reference deleted]. The 1983 weights represent the same physical count of items as the original 1973-74 and 1975-76 average weights used for index compilation. The 1974-76 weights were determined from detailed national empirical budget data collected by the National Center for Education Statistics, U.S. Department of Education. No subsequent data by object classification has been collected. However, the index now includes the addition of electronic data personnel. Thus the SPI remains fix-weighted on the basis of the 1974-76 budget percentage on the assumption that the physical count mix has remained materially the same, e.g., the number of classroom teachers employed relative to cubic feet of heating gas purchased has remained in essentially the same proportion.
>
> It is important to clarify that the 1974-76 budget percentages, as proxies for the physical

BEST COPY AVAILABLE

quantities involved, must be held constant until there is a change in the purchaser's material buying pattern.[2] The switch to 1982-83 weights is solely due to the adoption of 1983 as the base year (all prices for 1983 equal 100) by the U.S. Bureau of Labor Statistics. The FY 1983 weights used in computing the SPI have been established by multiplying each component by its respective 1974-76 price change. Both budgets represent essentially the same physical count mix of items.

Variance in the budgets of individual school districts from these national averages reduces only slightly the applicability of the SPI to any given jurisdictional situation. Modest differences in the weights attached to expenditure categories have little effect on overall index values. This is because the SPI is dominated by the trend in teacher salaries and similar salary trends for other personnel, which absorbs or diminishes the effects of price changes in other items purchased in smaller quantities.

---

[2]A change in budget percentage mix over time generally reflects the varying price differentials involved, not a change in physical count proportions. Thus the larger budget share for utilities in the later 1970s was due more to the doubling of oil prices than to schools buying more oil relative to the quantities of other commodities purchased. Price index weights are changed only when the physical mix of items purchased changes, not their prices.

Research Associates of Washington, "School Price Indexes", supra note 2, p. 16.

22. Conference Committee Report No. 75 on House Bill No. 139, Sixteenth Legislature, Regular Session of 1991, p. 10.

Chapter 4

EXPENDITURES FOR EDUCATION: AN INTERSTATE PERSPECTIVE

Introduction

The purpose of this chapter is to provide the working bases for an "analysis of the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching".[1]

Direct Measures–State Per Pupil Expenditures

Methodology. Reanalyzing data published by the National Center for Education Statistics (NCES) in *Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989*, the Bureau computed the following descriptive statistics on current expenditures per pupil in membership for the forty-nine states (excluding Hawaii) and the District of Columbia:[2]

(1) Range of (total) state per pupil expenditures and range of state per pupil expenditures for instruction, support services, and noninstruction. No statistic was computed on state per pupil expenditures for direct support (see discussion regarding the comparability of these data in this chapter). The range was operationally defined as the difference between the largest and smallest values in a distribution;[3]

(2) Mean state per pupil expenditure and mean state per pupil expenditure for instruction, support services, and noninstruction. No statistic was computed on state per pupil expenditures for direct support (see discussion regarding the comparability of these data in this chapter). This statistic was operationally defined as the unweighted arithmetic average of state per pupil expenditures;[4]

(3) Median state per pupil expenditure and median state per pupil expenditure for instruction, support services, and noninstruction. No statistic was computed on state per pupil expenditures for direct support (see discussion regarding the comparability of these data in this chapter). The median was conceptually defined as that point on the scale of measurement above which exactly one-half of the values lay and below which the other one-half of the values lay;[5]

(4) Skewness coefficient[6] for state per pupil expenditures and skewness coefficient for state per pupil expenditures for instruction, support services, and noninstruction. No statistic was computed on state per pupil expenditures for direct support (see discussion regarding the comparability of these data in this chapter). This statistic was designed to measure the symmetry of a distribution. A lack of symmetry, or "asymmetry", indicates the presence of extremely high or extremely low expenditure values affecting the mean expenditure value computed for the forty-nine states and the District of Columbia; and

(5) First (Q_1) and third (Q_3) quartiles for state per pupil expenditures and first and third quartiles for state per pupil expenditures for instruction, support services, and noninstruction. No statistic was computed on state per pupil expenditures for direct support (see discussion regarding the comparability of these data in this chapter). The first and third quartiles were conceptually defined as those points on the scale of measurement below which one-fourth of the values lay, and above which exactly one-fourth of the values lay, respectively.[7] In plain terms, counting up from below to include the lowest quarter of the values yields the point called the first quartile. Likewise, counting down from above to include the highest quarter of the values yields the point called the third quartile.

For the purposes of these analyses:

"Current expenditures" means expenditures for the accounting functions of instruction, support services, and noninstructional services for salaries, employee benefits, purchased services, and supplies. Also included are payments by the state made for or on behalf of school systems. This does not include expenditures for debt service, capital outlay, or property (i.e., equipment). Head Start, adult education, community colleges, and community services are not included.[8]

"Direct support expenditures" means expenditures made by a state for the benefit of the local education agency (LEA), or contributions of equipment or supplies. Such expenditures include those for the employer's contribution to LEA staff state pension funds, and contributions of property (equipment) and supplies such as school buses and textbooks.[9]

"Expenditures by the state for/on behalf of school districts" means payments made by a state for the benefit of the LEA, or contributions of equipment or supplies. Such expenditures include the payment of a pension fund by the state on behalf of an LEA employee for services rendered to the LEA; contributions of fixed assets (property, plant, and equipment) such as school buses and textbooks.[10]

"Instructional expenditures" means expenditures for activities dealing directly with the interaction between students and teachers (salaries, including sabbatical leave, employee benefits, purchased instructional services, and supplies).[11]

"Membership", which should not be confused with "average daily membership" or "ADM", means the count of students on the current roll taken on the school day closest to October 1 by using either (1) the sum of original entries and reentries minus total withdrawals, or (2) the sum of the total present and the total absent.[12]

"Noninstructional services expenditures" means expenditures for food service operations and other auxiliary enterprise operations (bookstore and interscholastic athletics), excluding community services (e.g., child care or swimming pool).[13]

"Support services expenditures" means expenditures for student support services (attendance, guidance, health, speech, and psychological), staff support services (improvement of instruction, and educational media, including librarians), general administration (board of education and central office), school administration (principal), business (fiscal services, purchasing, warehousing, and printing), operation and maintenance

of plant, student transportation services, and central expenditures (research, information services, and data processing).[14]

The exclusion of Hawaii from the computation of these descriptive statistics supposes that Hawaii was just now becoming a state, and beginning for the first time to compare its current expenditures for education to the other forty-nine states and the District of Columbia. It should be emphasized that the purpose of these analyses are to compare Hawaii's current expenditures for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom instruction, rather than to rank Hawaii's expenditures for these functions along with the expenditures of the other forty-nine states and the District of Columbia. Excluding Hawaii from the computation of these descriptive statistics has the added advantage of not allowing the State to influence the mean and the median of a distribution. This is particularly advantageous since Hawaii's relatively low per pupil expenditures would cause the mean and the median to gravitate toward the State, thus decreasing the magnitude of the disparity in per pupil expenditures between Hawaii and the rest of the United States.

Results. The results of the Bureau's computations, which are included as Tables 3, 4, 5, and 6, indicate that:

(1) Hawaii's (total) current expenditure per pupil, which is $3,841, is less than the median state (total) current expenditure per pupil, which is $4,049.0. Hawaii's ratio would place the State in the second quarter of the distribution (Q_1 = $3,474.8). The Bureau notes that differences in DOE and NCES accounting practices will produce different figures for (total) current expenditure per pupil (see Table 1). Consequently, it is important for the reader to remember what data (i.e., DOE or NCES) were used to compute certain descriptive statistics;

(2) Hawaii's current expenditure per pupil for instruction, which is $2,266, is less than the median state current expenditure per pupil for instruction, which is $2,382.0. Hawaii's ratio would place the State in the second quarter of the distribution (Q_1 = $1,992.3);

(3) Hawaii's current expenditure per pupil for support services, which is $1,301, is less than the median state current expenditure per pupil for support services, which is $1,368.5. Hawaii's ratio would place the State in the second quarter of the distribution (Q_1 = $1,099.3); and

(4) Hawaii's current expenditure per pupil for noninstruction, which is $274, is greater than the median state current expenditure per pupil for noninstruction, which is $178. Hawaii's ratio would place the State in the fourth quarter of the distribution (Q_3 = $219). The Bureau notes that this is the only category where Hawaii's per pupil expenditure exceeds the median state per pupil expenditure.

Table 3

Total Current Expenditures Per Pupil for Fiscal Year 1989 Based on Student Membership as of Fall 1988

Alabama	3,019	Nebraska	4,101
Alaska	6,940	Nevada	3,486
Arizona	3,728	New Hampshire	4,328
Arkansas	3,023	New Jersey	6,762
California	4,194	New Mexico	3,336
Colorado	4,047	New York	6,655
Connecticut	6,479	North Carolina	3,594
Delaware	4,958	North Dakota	3,635
District of Columbia	6,888	Ohio	4,175
Florida	4,210	Oklahoma	3,159
Georgia	3,616	Oregon	4,598
Idaho	2,661	Pennsylvania	5,180
Illinois	4,265	Rhode Island	5,517
Indiana	3,933	South Carolina	3,441
Iowa	4,027	South Dakota	3,369
Kansas	4,014	Tennessee	3,248
Kentucky	3,009	Texas	3,582
Louisiana	3,138	Utah	2,413
Maine	4,330	Vermont	5,196
Maryland	5,088	Virginia	4,225
Massachusetts	5,492	Washington	4,051
Michigan	4,734	West Virginia	3,580
Minnesota	4,515	Wisconsin	4,760
Mississippi	2,726	Wyoming	5,030
Missouri	3,839		
Montana	3,893	**Hawaii**	**3,841**

Range of state per pupil expenditures* = $4,527
Mean state per pupil expenditure* = $4,244
Median state per pupil expenditure* = $4,049.0
Skewness coefficient* = 0.9
First quartile* = $3,474.8
Third quartile* = $4,809.5

*Excluding Hawaii

Table 4

Current Expenditures Per Pupil for Instruction for Fiscal Year 1989 Based on Student Membership as of Fall 1988

Alabama	1,871	Nebraska	2,481
Alaska	3,828	Nevada	2,137
Arizona	2,187	New Hampshire	2,671
Arkansas	1,620	New Jersey	3,620
California	2,360	New Mexico	1,932
Colorado	2,511	New York	4,403
Connecticut	3,621	North Carolina	2,246
Delaware	3,372	North Dakota	2,292
District of Columbia	3,079	Ohio	2,403
Florida	2,439	Oklahoma	1,801
Georgia	2,257	Oregon	2,701
Idaho	1,554	Pennsylvania	3,035
Illinois	2,346	Rhode Island	3,472
Indiana	2,268	South Carolina	1,981
Iowa	2,427	South Dakota	2,078
Kansas	2,330	Tennessee	1,903
Kentucky	1,588	Texas	1,996
Louisiana	1,784	Utah	1,551
Maine	2,508	Vermont	3,082
Maryland	2,659	Virginia	2,792
Massachusetts	3,074	Washington	2,361
Michigan	2,457	West Virginia	1,872
Minnesota	2,858	Wisconsin	2,983
Mississippi	1,720	Wyoming	3,019
Missouri	2,331		
Montana	2,439	Hawaii	2,266

Range of state per pupil expenditures* = $2,852
Mean state per pupil expenditure* = $2,486
Median state per pupil expenditure* = $2,382.0
Skewness coefficient* = 0.8
First quartile* = $1,992.3
Third quartile* = $2,889.3

*Excluding Hawaii

Table 5

Current Expenditures Per Pupil for Support Services for Fiscal Year 1989 Based on Student Membership as of Fall 1988

Alabama	881	Nebraska	1,208
Alaska	2,913	Nevada	1,291
Arizona	1,356	New Hampshire	1,497
Arkansas	900	New Jersey	2,273
California	1,567	New Mexico	1,246
Colorado	1,387	New York	2,044
Connecticut	2,015	North Carolina	1,100
Delaware	1,489	North Dakota	1,173
District of Columbia	2,668	Ohio	1,550
Florida	1,548	Oklahoma	914
Georgia	1,090	Oregon	1,743
Idaho	824	Pennsylvania	1,662
Illinois	1,544	Rhode Island	1,633
Indiana	1,270	South Carolina	1,051
Iowa	1,428	South Dakota	1,097
Kansas	1,381	Tennessee	883
Kentucky	961	Texas	1,142
Louisiana	1,031	Utah	708
Maine	1,269	Vermont	1,750
Maryland	1,640	Virginia	1,272
Massachusetts	1,929	Washington	1,489
Michigan	1,739	West Virginia	1,146
Minnesota	1,460	Wisconsin	1,621
Mississippi	775	Wyoming	1,846
Missouri	1,338		
Montana	1,298	**Hawaii**	**1,301**

Range of state per pupil expenditures* = $2,205
Mean state per pupil expenditure* = $1,421
Median state per pupil expenditure* = $1,368.5
Skewness coefficient* = 1.1
First quartile* = $1,099.3
Third quartile* = $1,634.8

*Excluding Hawaii

Table 6

Current Expenditures Per Pupil for Noninstruction for Fiscal Year 1989 Based on Student Membership as of Fall 1988

Alabama	267	Nebraska	400
Alaska	200	Nevada	58
Arizona	178	New Hampshire	160
Arkansas	258	New Jersey	183
California	156	New Mexico	159
Colorado	149	New York	207
Connecticut	65	North Carolina	249
Delaware	96	North Dakota	170
District of Columbia	314	Ohio	222
Florida	223	Oklahoma	178
Georgia	219	Oregon	155
Idaho	131	Pennsylvania	196
Illinois	155	Rhode Island	15
Indiana	191	South Carolina	328
Iowa	172	South Dakota	194
Kansas	207	Tennessee	244
Kentucky	124	Texas	202
Louisiana	269	Utah	154
Maine	113	Vermont	160
Maryland	185	Virginia	161
Massachusetts	173	Washington	201
Michigan	147	West Virginia	230
Minnesota	191	Wisconsin	157
Mississippi	219	Wyoming	165
Missouri	170		
Montana	155	Hawaii	274

Range of state per pupil expenditures* = $385
Mean state per pupil expenditure* = $186
Median state per pupil expenditure* = $178
Skewness coefficient* = 0.5
First quartile* = $155
Third quartile* = $219

*Excluding Hawaii

Table 7

Current Expenditures Per Pupil for Direct Support for Fiscal Year 1989 Based on Student Membership as of Fall 1988

Alabama	0	Nebraska	12
Alaska	0	Nevada	0
Arizona	7	New Hampshire	0
Arkansas	246	New Jersey	687
California	112	New Mexico	0
Colorado	0	New York	0
Connecticut	778	North Carolina	0
Delaware	0	North Dakota	0
District of Columbia	827	Ohio	0
Florida	0	Oklahoma	266
Georgia	48	Oregon	0
Idaho	153	Pennsylvania	288
Illinois	220	Rhode Island	397
Indiana	204	South Carolina	81
Iowa	0	South Dakota	0
Kansas	96	Tennessee	218
Kentucky	337	Texas	242
Louisiana	53	Utah	0
Maine	441	Vermont	203
Maryland	604	Virginia	0
Massachusetts	316	Washington	0
Michigan	391	West Virginia	332
Minnesota	6	Wisconsin	0
Mississippi	13	Wyoming	0
Missouri	0		
Montana	0	**Hawaii**	**0**

Range of state per pupil expenditures* = not computed
Mean state per pupil expenditure* = not computed
Median state per pupil expenditure* = not computed
Skewness coefficient* = not computed
First quartile* = not computed
Third quartile* = not computed

*Excluding Hawaii

Although the abovementioned results help to place Hawaii's per pupil expenditures in a useful context, considerable uncertainty about the comparability of these data exist. Specifically, Hawaii and twenty-two other states reported little (i.e., less than $1 per pupil) or no current expenditures for direct support (See Table 7). According to the NCES, direct support expenditures represented 3.5 per cent of total current expenditures in fiscal year 1989.[15] Elaborating further on this point, the NCES stated that:[16]

> ...Prior to FY89, state education agency respondents placed the total state expenditure for employee benefits into a single category, such as instruction. With the advent of the FY89 fiscal survey, states could [emphasis added] record such a total expenditure under "Direct Support".

Considering the substantial number of states that reported little or no current expenditures for direct support, it could be reasonably argued that state per pupil expenditure data for fiscal year 1989 are not comparable because only three of the four expenditure categories are common to all fifty states and the District of Columbia. The Bureau notes that direct support expenditures could be made by a state for instructional services, noninstructional services, or support services. The direct support expenditures category provides information on the means of financing instructional services, noninstructional services, and support services. It does not, however, aid in the further delineation of expenditures for these services. Given the limitations of these data, the Bureau used the number of FTE staff employed by public school systems as a proxy for the "amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching".[17]

Indirect Measures--State Ratios of Student Membership to FTE Staff

Methodology. Reanalyzing data published by the NCES in *Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989,* the Bureau computed the following descriptive statistics on the number of staff employed by the public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia:[18]

(1) Range of state ratios of student membership to FTE instructional staff, range of state ratios of student membership to FTE administrative staff, and range of state ratios of student membership to FTE support staff;

(2) Mean state ratio of student membership to FTE instructional staff, mean state ratio of student membership to FTE administrative staff, and mean state ratio of student membership to FTE support staff;

(3) Median state ratio of student membership to FTE instructional staff, median state ratio of student membership to FTE administrative staff, and median state ratio of student membership to FTE support staff;

(4) Skewness coefficient for state ratios of student membership to FTE instructional staff, skewness coefficient for state ratios of student membership to FTE administrative staff, and skewness coefficient for state ratios of student membership to FTE support staff; and

(5) First and third quartiles for state ratios of student membership to FTE instructional staff, first and third quartiles for state ratios of student membership to FTE administrative staff, and first and third quartiles for state ratios of student membership to FTE support staff.

For the purposes of these analyses:

"Administrative staff" includes officials and administrators and school administrators.[19]

"Guidance counselors/directors" means professional staff members assigned specific duties and school time to activities involving counseling students and parents.[20]

"Instructional aides" means those staff members assigned to assist a teacher with routine activities associated with teaching.[21]

"Instructional staff" includes teachers and instructional aides.[22]

"Officials and administrators" means chief executive officers of the education agencies, including superintendents, deputy and assistant superintendents, and other persons with district-wide responsibilities (e.g., business managers, administrative assistants, professional instructional support staff, Chapter I coordinators, and home economics supervisors).[23]

Hawaii's count of "officials and administrators" includes the State Superintendent, Deputy Superintendent, and Assistant Superintendents. Other states do not count these individuals (of which there are 6 for Hawaii) as such because they are considered part of the "state education agency" rather than the "local education agency". In Hawaii, the state education agency and local education agency are practically one and the same.

"Other support staff" means all other staff who serve in a support capacity and are not included in the categories of central office administrative support, library support, or school administrative support (e.g., social workers, bus drivers, and health, maintenance, security, and cafeteria workers).[24]

"Support staff" includes guidance counselors/directors, librarians, and other support staff.[25]

"School administrators" means staff members whose activities are concerned with directing and managing the operation of a particular school, including principals, assistant principals, other assistants, and those who supervise school operations, assign duties to staff members, supervise and maintain the records of the school, and coordinate school instructional activities with those of the education agency, including department chairpersons.[26]

"Teachers" means those who provide instruction to prekindergarten, kindergarten, grades one through twelve, or ungraded classes. Those who teach in an environment other than a classroom setting are also included.[27]

The Bureau computed the ratio of student membership to number of FTE staff since the converse (i.e., computing the ratio of FTE staff to membership) would have resulted in numbers less than 1.0, which could easily be mistaken for proportions. This results from the

fact that student membership is greater than the number of FTE staff. While computing the ratio of the number of FTE staff to student membership would have been more analogous to using the number of FTE staff as a proxy for current expenditures and, consequently, the derivation of measures to describe state per pupil expenditures for administration, instruction, and support services, the Bureau chose to adhere to the convention of computing ratios in a manner that would produce a number greater than or equal to 1.0.

Using the number of FTE staff as a proxy for expenditures assumes that the number of FTE instructional staff, FTE administrative staff, and FTE support staff, are directly related to expenditures for instruction, administration, and support services, respectively. How consistent and constant these relationships might be could not be assessed within the time allotted for this study.

Results. The results of the Bureau's computations, which are included as Tables 8, 9, and 10, indicate that:

(1) Hawaii's ratio of student membership to FTE instructional staff, which is 17.3, is greater than the median state ratio of student membership to instructional staff, which is 14.5. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 15.5$);

(2) Hawaii's ratio of student membership to FTE administrative staff, which is 329.8, is greater than the median state ratio of student membership to administrative staff, which is 193.0. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 230.4$); and

(3) Hawaii's ratio of student membership to FTE support staff, which is 38.5, is greater than the median state ratio of student membership to support staff, which is 26.5. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 31.75$).

Table 8

Ratios of Student Membership to Full-Time Equivalent (FTE) Instructional Staff: Fall 1989

State	Student Membership as of Fall 1989	Number of FTE Instructional Staff as of Fall 1989	Ratio of Student Membership to FTE Instructional Staff
Alabama	723,343	43,066	16.8
Alaska	109,280	7,942	13.8
Arizona	607,615	36,926	16.5
Arkansas	434,960	29,294	14.8
California	4,771,978	265,650	18.0
Colorado	562,755	35,970	15.6
Connecticut	461,560	41,356	11.2
Delaware	97,808	6,689	14.6
District of Columbia	81,301	6,693	12.1
Florida	1,772,349	124,507	14.2
Georgia	1,126,535	77,516	14.5
Idaho	214,932	11,838	18.2
Illinois	1,797,355	119,189	15.1
Indiana	954,165	65,660	14.5
Iowa	478,486	33,711	14.2
Kansas	430,864	31,704	13.6
Kentucky	630,688	41,253	15.3
Louisiana	--	--	--
Maine	213,775	18,250	11.7
Maryland	698,806	47,231	14.8
Massachusetts	825,588	68,086	12.1
Michigan	1,576,785	91,390	17.3
Minnesota	739,553	50,813	14.6
Mississippi	502,020	35,892	14.0
Missouri	807,934	55,363	14.6
Montana	151,265	10,758	14.1
Nebraska	270,920	21,027	12.9
Nevada	186,834	9,175	20.4
New Hampshire	171,696	12,498	13.7
New Jersey	1,076,005	88,968	12.1
New Mexico	296,057	19,588	15.1
New York	2,565,841	199,100	12.9
North Carolina	1,080,744	81,548	13.3
North Dakota	117,816	8,842	13.3
Ohio	1,767,159	110,013	16.1
Oklahoma	578,580	39,640	14.6
Oregon	472,394	29,821	15.8
Pennsylvania	1,655,279	116,416	14.2
Rhode Island	135,729	10,372	13.1
South Carolina	616,177	41,153	15.0

State	Student Membership as of Fall 1989	Number of FTE Instructional Staff as of Fall 1989	Ratio of Student Membership to FTE Instructional Staff
South Dakota	127,329	9,489	13.4
Tennessee	819,660	51,379	16.0
Texas	3,328,514	229,159	14.5
Utah	437,446	20,895	20.9
Vermont	94,779	7,980	11.9
Virginia	985,346	71,429	13.8
Washington	810,232	46,093	17.6
West Virginia	327,540	24,414	13.4
Wisconsin	782,905	55,566	14.1
Wyoming	97,172	7,994	12.2
Hawaii	169,493	9,808	17.3

Range of state ratios of student membership to FTE instructional staff* = 9.7
Mean state ratio of student membership to FTE instructional staff* = 14.6
Median state ratio of student membership to FTE instructional staff* = 14.5
Skewness coefficient* = 1.0
First quartile* = 13.35
Third quartile* = 15.5

*Excluding Hawaii

Table 9

Ratios of Student Membership to Full-Time Equivalent (FTE) Administrative Staff: Fall 1989

State	Student Membership as of Fall 1989	Number of FTE Administrative Staff as of Fall 1989	Ratio of Student Membership to FTE Administrative Staff
Alabama	723,343	3,943	183.4
Alaska	109,280	1,248	87.6
Arizona	607,615	2,615	232.4
Arkansas	434,960	2,489	174.8
California	4,771,978	17,776	268.5
Colorado	562,755	3,411	165.0
Connecticut	461,560	2,667	173.1
Delaware	97,808	535	182.8
District of Columbia	81,301	1,016	80.0
Florida	1,772,349	8,961	197.8
Georgia	1,126,535	5,348	210.6
Idaho	214,932	864	248.8
Illinois	1,797,355	6,002	299.5
Indiana	954,165	4,290	222.4
Iowa	478,486	1,940	246.6
Kansas	430,864	2,009	214.5
Kentucky	630,688	3,268	193.0
Louisiana	--	--	--
Maine	213,775	1,692	126.3
Maryland	698,806	2,664	262.3
Massachusetts	825,588	4,366	189.1
Michigan	1,576,785	6,253	252.2
Minnesota	739,553	3,395	217.8
Mississippi	502,020	2,206	227.6
Missouri	807,934	5,568	145.1
Montana	151,265	765	197.7
Nebraska	270,920	1,726	157.0
Nevada	186,834	628	297.5
New Hampshire	171,696	906	189.5
New Jersey	1,076,005	8,233	130.7
New Mexico	296,057	1,823	162.4
New York	2,565,841	11,238	228.3
North Carolina	1,080,744	6,027	179.3
North Dakota	117,816	724	162.7
Ohio	1,767,159	10,418	169.6
Oklahoma	578,580	2,322	249.2
Oregon	472,394	2,352	200.8
Pennsylvania	1,655,279	12,004	137.9
Rhode Island	135,729	705	192.5
South Carolina	616,177	2,877	214.2

State	Student Membership as of Fall 1989	Number of FTE Administrative Staff as of Fall 1989	Ratio of Student Membership to FTE Administrative Staff
South Dakota	127,329	830	153.4
Tennessee	819,660	4,958	165.3
Texas	3,328,514	16,445	202.4
Utah	437,446	1,114	392.7
Vermont	94,779	780	121.5
Virginia	985,346	5,113	192.7
Washington	810,232	3,290	246.3
West Virginia	327,540	1,687	194.2
Wisconsin	782,905	3,214	243.6
Wyoming	97,172	627	155.0
Hawaii	169,493	514	329.8

Range of state ratios of student membership to FTE administrative staff* = 312.7
Mean state ratio of student membership to FTE administrative staff* = 198.7
Median state ratio of student membership to FTE administrative staff* = 193.0
Skewness coefficient* = 0.70
First quartile* = 163.9
Third quartile* = 230.4

*Excluding Hawaii

Table 10

Ratios of Student Membership to Full-Time Equivalent (FTE) Support Staff: Fall 1989

State	Student Membership as of Fall 1989	Number of FTE Support Staff as of Fall 1989	Ratio of Student Membership to FTE Support Staff
Alabama	723,343	32,777	22.1
Alaska	109,280	4,248	25.7
Arizona	607,615	21,777	27.9
Arkansas	434,960	17,618	24.7
California	4,771,978	136,247	35.0
Colorado	562,755	21,222	26.5
Connecticut	461,560	18,357	25.1
Delaware	97,808	3,618	27.0
District of Columbia	81,301	2,910	27.9
Florida	1,772,349	72,883	24.3
Georgia	1,126,535	43,075	26.2
Idaho	214,932	4,458	48.2
Illinois	1,797,355	62,491	28.8
Indiana	954,165	37,144	25.7
Iowa	478,486	21,175	22.6
Kansas	430,864	16,462	26.2
Kentucky	630,688	26,856	23.5
Louisiana	--	--	--
Maine	213,775	6,375	33.5
Maryland	698,806	26,728	26.1
Massachusetts	825,588	31,606	26.1
Michigan	1,576,785	73,246	21.5
Minnesota	739,553	22,060	33.5
Mississippi	502,020	18,263	27.5
Missouri	807,934	37,384	21.6
Montana	151,265	1,020	148.3
Nebraska	270,920	10,572	25.6
Nevada	186,834	508	367.8
New Hampshire	171,696	7,152	24.0
New Jersey	1,076,005	49,416	21.8
New Mexico	296,057	10,754	27.5
New York	2,565,841	134,734	19.0
North Carolina	1,080,744	34,895	31.0
North Dakota	117,816	4,566	25.8
Ohio	1,767,159	67,724	26.1
Oklahoma	578,580	23,114	25.0
oregon	472,394	16,052	29.4
Pennsylvania	1,655,279	61,755	26.8
Rhode Island	135,729	4,107	33.0
South Carolina	616,177	19,303	31.9

State	Student Membership as of Fall 1989	Number of FTE Support Staff as of Fall 1989	Ratio of Student Membership to FTE Support Staff
South Dakota	127,329	2,810	33.4
Tennessee	819,660	29,712	27.6
Texas	3,328,514	87,344	38.1
Utah	437,446	9,342	46.8
Vermont	94,779	3,199	29.6
Virginia	985,346	43,661	22.6
Washington	810,232	23,134	35.0
West Virginia	327,540	13,306	24.6
Wisconsin	782,905	24,781	31.6
Wyoming	97,172	4,800	20.2
Hawaii	97,172	4,401	38.5

Range of state ratios of student membership to FTE support staff* = 348.8
Mean state ratio of student membership to FTE support staff* = 37.3
Median state ratio of student membership to FTE support staff* = 26.5
Skewness coefficient* = 5.8
First quartile* = 24.65
Third quartile* = 31.75

*Excluding Hawaii

Indirect Measures--State Ratios of FTE Staff

As previously discussed, considerable uncertainty about the comparability of expenditure data for instructional services, noninstructional services, and support services exist because of the recent addition of a category for direct support expenditures. As a result, it was not possible to directly measure the relationship between expenditures for instructional services and noninstructional services, for example. Instead, indirect measures using the relative numbers of FTE instructional staff, FTE administrative staff, and FTE support staff were employed.

Methodology. Reanalyzing data published by the NCES in *Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989,* the Bureau computed the following descriptive statistics on the number of staff employed by public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia:[28]

(1) Range of state ratios of FTE instructional staff and FTE administrative staff to FTE support staff, range of state ratios of FTE instructional staff and FTE support staff to FTE administrative staff, and range of state ratios of FTE instructional staff to FTE administrative staff and FTE support staff;

(2) Mean state ratio of FTE instructional staff and FTE administrative staff to FTE support staff, mean state ratio of FTE instructional staff and FTE support staff to FTE administrative staff, and mean ratio of FTE instructional staff to FTE administrative staff and FTE support staff;

(3) Median state ratio of FTE instructional staff and FTE administrative staff to FTE support staff, median state ratio of FTE instructional staff and FTE support staff to FTE administrative staff, and median state ratio of FTE instructional staff to FTE administrative staff and FTE support staff;

(4) Skewness coefficient for state ratios of FTE instructional staff and FTE administrative staff to FTE support staff, skewness coefficient for state ratios of FTE instructional staff and FTE support staff to FTE administrative staff, and skewness coefficient for state ratios of FTE instructional staff to FTE administrative staff and FTE support staff; and

(5) First and third quartiles for state ratios of FTE instructional staff and FTE administrative staff to FTE support staff, first and third quartiles for state ratios of FTE instructional staff and FTE support staff to FTE administrative staff, and first and third quartiles for state ratios of FTE instructional staff to FTE administrative staff and FTE support staff.

The use of ratios is conceptually consistent with the need to compute indirect measures comparing the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching. This requires the use of ratios rather than percentages since the goal here is to derive information on the relationship between one part and another part or parts rather than the relationship between one part and the whole. Adding the number of FTE administrative staff and FTE support staff to yield the number of all FTE staff other than instructional staff, for example, is conceptually consistent with the NCES' practice of adding the number of FTE administrative

staff, FTE instructional staff, and FTE support staff, to compute the percentage of each (part) to the whole (i.e., the number of all FTE staff). Practically speaking, the primary limitation of the Bureau's methodology lies in the interpretation and use of these data rather than their computation.

Results. The results of the Bureau's computations, which are included as Tables 11, 12, 13, and 14, indicate that:

(1) Hawaii's ratio of FTE instructional staff and FTE administrative staff to FTE support staff, which is 2.3, is greater than the median state ratio of FTE instructional staff and FTE administrative staff to FTE support staff, which is 2.0. Hawaii's ratio would place the State in the third quarter of the distribution ($Q_3 = 2.4$);

(2) Hawaii's ratio of FTE instructional staff and FTE support staff to FTE administrative staff, which is 27.6, is greater than the median state ratio of FTE instructional staff and FTE support staff to FTE administrative staff, which is 20.5. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 22.75$); and

(3) Hawaii's ratio of FTE instructional staff to FTE administrative staff and FTE support staff, which is 2.0, is greater than the median state ratio of FTE instructional staff to FTE administrative staff and FTE support staff, which is 1.6. Hawaii's ratio would place the State at the third quartile of the distribution ($Q_3 = 2.0$).

Despite large differences between the number of staff employed by the DOE in Fall 1988 (20,730) and the number employed in Fall 1989 (14,723), the Bureau believes that these data are reliable. According to the DOE's Common Core Data Coordinator, a substantial portion of this difference was due to the fact that data for Fall 1989 were reported in full-time equivalents while data for Fall 1988 were reported in terms of "warm bodies".[29] Other factors contributing to this difference included:[30]

Table 11

Number of Full-time Equivalent (FTE) Instructional Staff, FTE Administrative Staff, and FTE Support Staff: Fall 1989

State	Number of FTE instructional staff*	Number of FTE administrative staff**	Number of FTE support staff***	Total number of FTE staff
Alabama	43,066	3,943	32,777	79,786
Alaska	7,942	1,248	4,248	13,438
Arizona	36,926	2,615	21,777	61,318
Arkansas	29,294	2,489	17,618	49,401
California	265,650	17,776	136,247	419,673
Colorado	35,970	3,411	21,222	60,603
Connecticut	41,356	2,667	18,357	62,380
Delaware	6,689	535	3,618	10,842
District of Columbia	6,693	1,016	2,910	10,619
Florida	124,507	8,961	72,883	206,351
Georgia	77,516	5,348	43,075	125,939
Idaho	11,838	864	4,458	17,160
Illinois	119,189	6,002	62,491	187,682
Indiana	65,660	4,290	37,144	107,094
Iowa	33,711	1,940	21,175	56,826
Kansas	31,704	2,009	16,462	50,175
Kentucky	41,253	3,268	26,856	71,377
Louisiana	--	--	--	--
Maine	18,250	1,692	6,375	26,317
Maryland	47,231	2,664	26,728	76,623
Massachusetts	68,086	4,366	31,606	104,058
Michigan	91,390	6,253	73,246	170,889
Minnesota	50,813	3,395	22,060	76,268
Mississippi	35,892	2,206	18,263	56,361
Missouri	55,363	5,568	37,384	98,315
Montana	10,758	765	1,020	12,543
Nebraska	21,027	1,726	10,572	33,325
Nevada	9,175	628	508	10,311
New Hampshire	12,498	906	7,152	20,556
New Jersey	88,968	8,233	49,416	146,617
New Mexico	19,588	1,823	10,754	32,165
New York	199,100	11,238	134,734	345,072
North Carolina	81,548	6,027	34,895	122,470
North Dakota	8,842	724	4,566	14,132
Ohio	110,013	10,418	67,724	188,155
Oklahoma	39,640	2,322	23,114	65,076
Oregon	29,821	2,352	16,052	48,225
Pennsylvania	116,416	12,004	61,755	190,175
Rhode Island	10,372	705	4,107	15,184
South Carolina	41,153	2,877	19,303	63,333

State	Number of FTE instructional staff*	Number of FTE administrative staff**	Number of FTE support staff***	Total number of FTE staff
South Dakota	9,489	830	3,810	14,129
Tennessee	51,379	4,958	29,712	86,049
Texas	229,159	16,445	87,344	332,948
Utah	20,895	1,114	9,342	31,351
Vermont	7,980	780	3,199	11,959
Virginia	71,429	5,113	43,661	120,203
Washington	46,093	3,290	23,134	72,517
West Virginia	24,414	1,687	13,306	39,407
Wisconsin	55,566	3,214	24,781	83,561
Wyoming	7,994	627	4,800	13,421
Hawaii	**9,808**	**514**	**4,401**	**14,723**

* Includes teachers and instructional aides.

** Includes officials and administrators and school administrators.

*** Includes guidance counselors/directors, librarians, and other support staff.

Table 12

Ratios of Full-time Equivalent (FTE) Instructional Staff and FTE Administrative Staff to FTE Support Staff: Fall 1989

Alabama	1.4	Nebraska	2.2
Alaska	2.2	Nevada	19.3
Arizona	1.8	New Hampshire	1.9
Arkansas	1.8	New Jersey	2.0
California	2.1	New Mexico	2.0
Colorado	1.9	New York	1.6
Connecticut	2.4	North Carolina	2.5
Delaware	2.0	North Dakota	2.1
District of Columbia	2.6	Ohio	1.8
Florida	1.8	Oklahoma	1.8
Georgia	1.9	Oregon	2.0
Idaho	2.8	Pennsylvania	2.1
Illinois	2.0	Rhode Island	2.7
Indiana	1.9	South Carolina	2.3
Iowa	1.7	South Dakota	2.7
Kansas	2.0	Tennessee	1.9
Kentucky	1.7	Texas	2.8
Louisiana	--	Utah	2.4
Maine	3.1	Vermont	2.7
Maryland	1.9	Virginia	1.8
Massachusetts	2.3	Washington	2.1
Michigan	1.3	West Virginia	2.0
Minnesota	2.5	Wisconsin	2.4
Mississippi	2.1	Wyoming	1.8
Missouri	1.6		
Montana	11.3	**Hawaii**	2.3

Range of state ratios of FTE instructional staff and FTE administrative staff to FTE support staff* = 18.0

Mean state ratio of FTE instructional staff and FTE administrative staff to FTE support staff* = 2.6

Median state ratio of FTE instructional staff and FTE administrative staff to FTE support staff* = 2.0

Skewness coefficient* = 5.1

First quartile* = 1.8

Third quartile* = 2.4

*Excluding Hawaii

Table 13

Ratios of Full-time Equivalent (FTE) Instructional Staff and FTE Support Staff to FTE Administrative Staff: Fall 1989

Alabama	19.2	Nebraska	18.3
Alaska	9.8	Nevada	15.4
Arizona	22.4	New Hampshire	21.7
Arkansas	18.8	New Jersey	16.8
California	22.7	New Mexico	16.6
Colorado	16.8	New York	29.7
Connecticut	22.4	North Carolina	19.3
Delaware	19.3	North Dakota	18.5
District of Columbia	9.5	Ohio	17.1
Florida	22.0	Oklahoma	27.0
Georgia	22.5	Oregon	19.5
Idaho	18.9	Pennsylvania	14.8
Illinois	30.3	Rhode Island	20.5
Indiana	24.0	South Carolina	21.0
Iowa	28.3	South Dakota	16.0
Kansas	24.0	Tennessee	16.4
Kentucky	20.8	Texas	19.2
Louisiana	--	Utah	27.1
Maine	14.6	Vermont	14.3
Maryland	27.8	Virginia	22.5
Massachusetts	22.8	Washington	21.0
Michigan	26.3	West Virginia	22.4
Minnesota	21.5	Wisconsin	25.0
Mississippi	24.5	Wyoming	20.4
Missouri	16.7		
Montana	15.4	Hawaii	27.6

Range of state ratios of FTE instructional staff and FTE support staff to FTE administrative staff* = 20.8

Mean state ratio of FTE instructional staff and FTE support staff to FTE administrative staff* = 20.4

Median state ratio of FTE instructional staff and FTE support staff to FTE administrative staff* = 20.5

Skewness coefficient* = 0.02

First quartile* = 16.8

Third quartile* = 22.75

*Excluding Hawaii

BEST COPY AVAILABLE

Table 14

Ratios of Full-time Equivalent (FTE) Instructional Staff to FTE Administrative Staff and FTE Support Staff: Fall 1989

Alabama	1.2	Nebraska	1.7
Alaska	1.4	Nevada	8.1
Arizona	1.5	New Hampshire	1.6
Arkansas	1.5	New Jersey	1.5
California	1.7	New Mexico	1.6
Colorado	1.5	New York	1.4
Connecticut	2.0	North Carolina	2.0
Delaware	1.6	North Dakota	1.7
District of Columbia	1.7	Ohio	1.4
Florida	1.5	Oklahoma	1.6
Georgia	1.6	Oregon	1.6
Idaho	2.2	Pennsylvania	1.6
Illinois	1.7	Rhode Island	2.2
Indiana	1.6	South Carolina	1.9
Iowa	1.5	South Dakota	2.0
Kansas	1.7	Tennessee	1.5
Kentucky	1.4	Texas	2.2
Louisiana	--	Utah	2.0
Maine	2.3	Vermont	2.0
Maryland	1.6	Virginia	1.5
Massachusetts	1.9	Washington	1.7
Michigan	1.1	West Virginia	1.6
Minnesota	2.0	Wisconsin	2.0
Mississippi	1.8	Wyoming	1.5
Missouri	1.3		
Montana	6.0	Hawaii	2.0

Range of state ratios of FTE instructional staff to FTE administrative staff and FTE support staff* = 7.0

Mean state ratio of FTE instructional staff to FTE administrative staff and FTE support staff* = 1.9

Median state ratio of FTE instructional staff to FTE administrative staff and FTE support staff* = 1.6

Skewness coefficient* = 4.5

First quartile* = 1.5

Third quartile* = 2.0

*Excluding Hawaii

2. Special Education Teachers: The count of Special Education Teachers was not included in the previous years reports. The student count of Special Education was included, however. Corrections are noted on the attached form.

3. The significant reductions under the Support Services category for the 1989-90 [sic] is a result of limiting the State Nonfiscal Survey to the seven Administrative Districts. Please refer to the attached letter dated March 21, 1990.

   The previous year's report data source (EEO 5 Report) for Instructional Assistants was found to be unreliable. Please note revisions.

According to the DOE's March 21, 1990, letter to the NCES regarding the abovementioned State Nonfiscal Survey:[31]

> The State Nonfiscal Survey data is limited to the seven administrative districts and does not include the State Central Office except for the State Superintendent, Deputy Superintendent, and Assistant Superintendents. As a result, there are notable differences between the current and previous year's data especially in items C06 [officials and administrators], C07 [administrative support staff], C09 [school administrative support staff], and C0 10 [all other support service staff].

Additional Analyses of Indirect Measures--State Ratios of FTE Staff

Methodology. To gain additional insight into the ratio of FTE instructional staff and FTE administrative staff to FTE support staff, the ratio of FTE instructional staff and FTE support staff to FTE administrative staff, and the ratio of FTE instructional staff to FTE administrative staff and FTE support staff, the Bureau reanalyzed data published by the NCES in *Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989*, and computed the following descriptive statistics on the number of staff employed by public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia:[32]

(1) Range of state ratios of all FTE staff other than officials and administrators to FTE officials and administrators, range of state ratios of all FTE staff other than other support staff to FTE other support staff, and range of state ratios of FTE teachers to all FTE staff other than teachers;

(2) Mean state ratio of all FTE staff other than officials and administrators to FTE officials and administrators, mean state ratio of all FTE staff other than other support staff to FTE other support staff, and mean state ratio of FTE teachers to all FTE staff other than teachers;

(3) Median state ratio of all FTE staff other than officials and administrators to FTE officials and administrators, median state ratio of all FTE staff other than other support staff to FTE other support staff, and median state ratio of FTE teachers to all FTE staff other than teachers;

(4) Skewness coefficient for state ratios of all FTE staff other than officials and administrators to FTE officials and administrators, skewness coefficient for state ratios of all FTE staff other than other support staff to FTE other support staff, and skewness coefficient for state ratios of FTE teachers to all FTE staff other than teachers; and

(5) First and third quartiles for state ratios of all FTE staff other than officials and administrators to FTE officials and administrators, first and third quartiles for state ratios of all FTE staff other than other support staff to FTE other support staff, and first and third quartiles for state ratios of FTE teachers to all FTE staff other than teachers.

Results. The results of the Bureau's computations, which are included as Tables 15, 16, and 17, indicate that:

(1) Hawaii's ratio of all FTE staff other than officials and administrators to FTE officials and administrators, which is 146.2, is greater than the median state ratio of all FTE staff other than officials and administrators to FTE officials and administrators, which is 63.0. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 82.95$);

(2) Hawaii's ratio of all FTE staff other than other support staff to FTE other support staff, which is 3.0, is greater than the median state ratio of all FTE staff other than other support staff to FTE other support staff, which is 2.3. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 2.7$); and

(3) Hawaii's ratio of FTE teachers to all FTE staff other than teachers, which is 1.5, is greater than the median state ratio of FTE teachers to all FTE staff other than teachers, which is 1.2. Hawaii's ratio would place the State in the fourth quarter of the distribution ($Q_3 = 1.3$).

Discussion

Direct Measures–State Per Pupil Expenditures. Based on the descriptive statistics of current expenditures per pupil in membership for the forty-nine states (excluding Hawaii) and the District of Columbia, Hawaii's current expenditure per pupil for noninstruction would appear to be inconsistent with the State's (total) per pupil expenditure and per pupil expenditures for instruction and support services. The fact that Hawaii's current expenditure per pupil for noninstruction is greater than the median state current expenditure per pupil for noninstruction is, in the Bureau's opinion, not remarkable. The fact that Hawaii's current expenditure per pupil for noninstruction would place the State in the fourth quarter of the distribution is, on the contrary, quite surprising given the State's consistently low placement in the other distributions. It should be emphasized that the statistics only compare per pupil expenditure data for Hawaii to per pupil expenditure data for the other forty-nine states and

the District of Columbia (as opposed to the cost of providing a national-average, i.e., representative, level of service), and that the underlying assumption in these comparisons is that a state with a relatively high or low per pupil expenditure would have correspondingly high or low per pupil expenditures for instruction, support services, and noninstruction.

While the foregoing assumption is, admittedly, subject to challenge, the descriptive statistics can be useful to the DOE and the Legislature if the statistics and the findings they support are used carefully and appropriately. Because there are many uncertainties as to just how comparable these data really are, the finding relating to per pupil expenditures for noninstructional services should be interpreted with the utmost caution. Furthermore, since there is no practical methodology for distinguishing systematically between variations in the costs of public services and variations in the levels of public services, no inferences should be drawn from that finding.

The Bureau emphasizes that this finding is not conclusive and should not be used by the Legislature or the DOE to justify future decisions regarding the appropriation and allocation of personnel and material resources for noninstructional services. Rather, these findings can be used by the Legislature and the DOE to direct future, detailed inquiries into the appropriation and allocation of resources for noninstructional services.

One clearly inappropriate use of this finding would be to reduce or to limit the State's current expenditure per pupil for noninstructional services ($274) to $178. (As previously discussed, the median state current expenditure per pupil for noninstruction is $178.) A more appropriate use of this finding would be to initiate future, detailed inquiries into the appropriateness of expenditures for noninstructional services when these expenditures exceed the median state current expenditure per pupil for noninstructional services.

Indirect Measures–State Ratios of Student Membership to FTE Staff. Based on the descriptive statistics of the number of staff employed by public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia, Hawaii's ratios of:

(1) Student membership to FTE instructional staff;

(2) Student membership to FTE administrative staff; and

(3) Student membership to FTE support staff;

would not appear to be consistent with beliefs that the DOE has:

(1) A relatively large number of administrative staff in relation to the number of students; and

(2) A relatively large number of support staff in relation to the number of students.

Hawaii's ratio of student membership to FTE instructional staff is consistent with the belief that the DOE has a relatively small number of instructional staff (i.e., teachers and instructional aides) in relation to the number of students.

While these findings appear to be consistent with the Hawaii's relatively low (total) state per pupil expenditure for education (see Table 3), the Bureau notes that it is difficult to detect major deviations in either the number of FTE administrative staff or FTE support staff,

or both, using data that compare state staffing levels. Another indirect method of detecting these deviations would be to compute measures comparing:

(1) The number of all FTE staff other than support staff to FTE support staff (or the number of FTE instructional staff and FTE administrative staff to FTE support staff);

(2) The number of all FTE staff other than administrative staff to FTE administrative staff (or the number of FTE instructional staff and FTE support staff to FTE administrative staff); and

(3) The number of FTE instructional staff to all FTE staff other than instructional staff (or the number of FTE instructional staff to FTE administrative staff and FTE support staff).

Indirect Measures--State Ratios of FTE Staff. Based on the descriptive statistics of the number of staff employed by public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia, Hawaii's ratios of:

(1) FTE instructional staff and FTE administrative staff to FTE support staff;

(2) FTE instructional staff and FTE support staff to FTE administrative staff; and

(3) FTE instructional staff to FTE administrative staff and FTE support staff;

would not appear to be consistent with beliefs that the DOE has:

(1) A relatively large number of FTE administrative staff in relation to the number of FTE instructional staff and FTE support staff;

(2) A relatively small number of FTE instructional staff in relation to the number of FTE administrative staff and FTE support staff; and

(3) A relatively large number of FTE support staff in relation to the number of FTE instructional staff and FTE administrative staff.

It should be emphasized that these statistics only compare FTE staff data for Hawaii to FTE staff data for the other forty-nine states and the District of Columbia (as opposed to the number of FTE staff needed to provide a national-average, i.e., representative, level of service), and that the underlying assumptions in these comparisons are that:

(1) The number of FTE support staff is directly related to the number of FTE instructional staff and FTE administrative staff;

(2) The number of FTE administrative staff is directly related to the number of FTE instructional staff and FTE support staff; and

(3) The number of FTE administrative staff and FTE support staff is directly related to the number of FTE instructional staff.

While these foregoing assumptions are, admittedly, subject to challenge, the descriptive statistics, once again, can be useful to the DOE and the Legislature if the statistics and the findings they support are used carefully and appropriately. Although (1) expenditures for personal services (i.e., salaries and related fringe benefits) consume a substantial portion of a state's annual operating budget for education, and (2) the number of FTE administrative, instructional, and support staff should (at least in theory) be directly related to the total amounts expended for administration, instruction, and support services, respectively, the findings should be interpreted cautiously because of uncertainties about the comparability of the data used to generate these statistics and the validity of the foregoing assumptions. The Bureau emphasizes that these findings are not conclusive and should not be used by the Legislature or the DOE to justify future decisions regarding the appropriation and allocation of personnel and material resources for administration, instruction, and support services. Once again, these findings can be used by the Legislature and the DOE to direct future, detailed inquiries into the appropriation and allocation of resources for administration, instruction, and support services.

One clearly inappropriate use of this finding would be to justify the creation of additional administrative and support staff positions to make Hawaii's ratio of FTE instructional staff and FTE administrative staff to FTE support staff (2.3), and ratio of FTE instructional staff and FTE support staff to FTE administrative staff (27.6), equal to the median state ratio for each (2.0 and 20.5, respectively). A more appropriate use of this finding would be to initiate future, detailed inquiries into the appropriateness of the number of FTE administrative and support staff positions when Hawaii's ratio of FTE instructional staff and FTE administrative staff to FTE support staff, and ratio of FTE instructional staff and FTE support staff to FTE administrative staff, begin to approach the median state ratio for each.

Additional Analyses of Indirect Measures--State Ratios of FTE Staff. Based on the descriptive statistics of the number of staff employed by public school systems for the forty-nine states (excluding Hawaii) and the District of Columbia, Hawaii's ratios of:

(1) All FTE staff other than officials and administrators to FTE officials and administrators;

(2) All FTE staff other than other support staff to FTE other support staff; and

(3) FTE teachers to all FTE staff other than teachers;

would not appear to be consistent with beliefs that the DOE has:

(1) A relatively large number of FTE officials and administrators in relation to the number of FTE staff other than officials and administrators;

(2) A relatively large number of FTE other support staff in relation to the number of FTE staff other than other support staff; and

(3) A relatively small number of FTE teachers in relation to the number of FTE staff other than teachers.

It should be emphasized that the statistics discussed only compare FTE staff data for Hawaii to FTE staff data for the other forty-nine states and the District of Columbia, and that the underlying assumptions in these comparisons are that:

(1) The number of FTE officials and administrators is directly related to the number of all FTE staff other than officials and administrators;

(2) The number of FTE other support staff is directly related to the number of all FTE staff other than other support staff; and

(3) The number of all FTE staff other than teachers is directly related to the number of FTE teachers.

Summary

Although the stated purpose of this chapter was to provide the working bases for an "analysis of the amounts expended for such functions as administrative support in comparison to the amounts expended directly for students, such as classroom teaching",[33] the Bureau believes that the resulting analysis would have been of little practical use to the Legislature if expenditure data for Hawaii were not comparable to expenditure data for other states. The Bureau's choice of measures and statistics represents a compromise between the need for comparable data, the availability of comparable data, the characteristics of the available data, and legislative intent. Consequently, the utility of the resulting analysis is limited by the acceptability of the compromise made to satisfy competing demands.

Table 15

Ratios of All Full-time Equivalent (FTE) Staff Other Than Officials and Administrators to FTE Officials and Administrators: Fall 1989

	Total number of FTE staff other than officials and administrators	Number of FTE officials and administrators	Ratio of all FTE staff other than officials and and administrators to FTE officials and administrators
Alabama	78,187	1,599	48.9
Alaska	12,583	855	14.7
Arizona	60,087	1,231	48.8
Arkansas	48,736	665	73.3
California	413,971	5,702	72.6
Colorado	59,671	932	64.0
Connecticut	61,219	1,161	52.7
Delaware	10,696	146	73.3
District of Columbia	10,184	435	23.4
Florida	203,335	3,016	67.4
Georgia	125,336	603	207.9
Idaho	16,849	311	54.2
Illinois	186,018	1,664	111.8
Indiana	105,488	1,606	65.7
Iowa	56,317	509	110.6
Kansas	49,703	472	105.3
Kentucky	69,810	1,567	44.6
Louisiana	--	--	--
Maine	25,499	818	31.2
Maryland	76,301	322	237.0
Massachusetts	101,760	2,298	44.3
Michigan	169,231	1,658	102.1
Minnesota	74,618	1,650	45.2
Mississippi	55,481	880	63.0
Missouri	97,172	1,143	85.0
Montana	12,267	276	44.4
Nebraska	32,669	656	49.8
Nevada	10,117	194	52.1
New Hampshire	20,269	287	70.6
New Jersey	145,146	1,471	98.7
New Mexico	31,414	751	41.8
New York	340,861	4,211	80.9
North Carolina	120,243	2,227	54.0
North Dakota	13,782	350	39.4
Ohio	182,504	5,651	32.3
Oklahoma	64,408	668	96.4
Oregon	47,297	928	51.0
Pennsylvania	182,172	8,003	22.8

	Total number of FTE staff other than officials and administrators	Number of FTE officials and administrators	Ratio of all FTE staff other than officials and and administrators to FTE officials and administrators
Rhode Island	15,028	156	96.3
South Carolina	62,515	818	76.4
South Dakota	13,803	326	42.3
Tennessee	85,446	603	141.7
Texas	327,624	5,324	61.5
Utah	31,047	304	102.1
Vermont	11,601	358	32.4
Virginia	118,273	1,930	61.3
Washington	71,476	1,041	68.7
West Virginia	38,913	494	78.8
Wisconsin	82,403	1,158	71.2
Wyoming	13,120	301	43.6
Hawaii	**14,623**	**100**	**146.2**

Range of state ratios of all FTE staff other than officials and administrators to FTE officials and administrators* = 222.3

Mean state ratio of all FTE staff other than officials and administrators to FTE officials and administrators* = 70.6

Median state ratio of all FTE staff other than officials and administrators to FTE officials and administrators* = 63.0

Skewness coefficient* = 2.1

First quartile* = 44.50

Third quartile* = 82.95

*Excluding Hawaii

Table 16

Ratios of All Full-time Equivalent (FTE) Staff Other Than Other Support Staff to FTE Other Support Staff: Fall 1989

	Total number of FTE staff other than other support staff	Number of FTE other support staff	Ratio of all FTE staff other than other support staff to FTE other support staff
Alabama	49,363	30,423	1.6
Alaska	9,556	3,882	2.5
Arizona	40,962	20,356	2.0
Arkansas	33,863	15,538	2.2
California	290,112	129,561	2.2
Colorado	41,119	19,484	2.1
Connecticut	46,810	15,570	3.0
Delaware	7,534	3,308	2.3
District of Columbia	8,122	2,497	3.3
Florida	140,283	66,068	2.1
Georgia	86,272	39,667	2.2
Idaho	13,172	3,988	3.3
Illinois	130,055	57,627	2.3
Indiana	72,571	34,523	2.1
Iowa	37,397	19,429	1.9
Kansas	35,778	14,397	2.5
Kentucky	46,623	24,754	1.9
Louisiana	--	--	--
Maine	20,774	5,543	3.7
Maryland	52,469	24,154	2.2
Massachusetts	75,196	28,862	2.6
Michigan	102,060	68,829	1.5
Minnesota	55,836	20,432	2.7
Mississippi	39,477	16,884	2.3
Missouri	64,263	34,052	1.9
Montana	12,159	384	31.7
Nebraska	23,851	9,474	2.5
Nevada	10,311	0	--
New Hampshire	14,256	6,300	2.3
New Jersey	101,831	44,786	2.3
New Mexico	22,209	9,956	2.2
New York	219,923	125,149	1.8
North Carolina	92,073	30,397	3.0
North Dakota	9,909	4,223	2.3
Ohio	125,315	62,840	2.0
Oklahoma	43,687	21,389	2.0
Oregon	33,986	14,239	2.4
Pennsylvania	133,755	56,420	2.4
Rhode Island	11,654	3,530	3.3

	Total number of FTE staff other than other support staff	Number of FTE other support staff	Ratio of all FTE staff other than other support staff to FTE other support staff
South Carolina	46,381	16,952	2.7
South Dakota	10,747	3,382	3.2
Tennessee	58,792	27,257	2.2
Texas	257,415	75,533	3.4
Utah	22,646	8,705	2.6
Vermont	9,219	2,740	3.4
Virginia	81,231	38,972	2.1
Washington	51,860	20,657	2.5
West Virginia	27,023	12,384	2.2
Wisconsin	61,749	21,812	2.8
Wyoming	8,937	4,484	2.0
Hawaii	**11,050**	**3,673**	**3.0**

Range of state ratios of all FTE staff other than other support staff to FTE other support staff* = 30.2
Mean state ratio of all FTE staff other than other support staff to FTE other support staff* = 3.04
Median state ratio of all FTE staff other than other support staff to FTE other support staff* = 2.3
Skewness coefficient* = 6.6
First quartile* = 2.1
Third quartile* = 2.7

*Excluding Hawaii

Table 17

Ratios of All Full-time Equivalent (FTE) Teachers to FTE Staff Other Than Teachers: Fall 1989

	Number of FTE teachers	Total number of FTE staff other than teachers	Ratio of FTE teachers to all FTE staff other than teachers
Alabama	39,928	39,858	1.0
Alaska	6,492	6,946	0.9
Arizona	32,134	29,184	1.1
Arkansas	25,585	23,816	1.1
California	212,687	206,986	1.0
Colorado	31,954	28,649	1.1
Connecticut	35,308	27,072	1.3
Delaware	5,968	4,874	1.2
District of Columbia	6,055	4,564	1.3
Florida	104,127	102,224	1.0
Georgia	61,487	64,452	1.0
Idaho	10,715	6,445	1.7
Illinois	106,183	81,499	1.3
Indiana	54,486	52,608	1.0
Iowa	30,423	26,403	1.2
Kansas	28,727	21,448	1.3
Kentucky	35,731	35,646	1.0
Louisiana	--	--	--
Maine	15,206	11,111	1.4
Maryland	41,646	34,977	1.2
Massachusetts	59,040	45,018	1.3
Michigan	80,150	90,739	0.9
Minnesota	43,101	33,167	1.3
Mississippi	27,591	28,770	1.0
Missouri	51,227	47,088	1.1
Montana	9,627	2,916	3.3
Nebraska	18,464	14,861	1.2
Nevada	9,175	1,136	8.1
New Hampshire	10,572	9,984	1.1
New Jersey	79,597	67,020	1.2
New Mexico	16,150	16,015	1.0
New York	174,610	170,462	1.0
North Carolina	63,160	59,310	1.1
North Dakota	7,809	6,323	1.2
Ohio	101,627	86,528	1.2
Oklahoma	35,631	29,445	1.2
Oregon	25,630	22,595	1.1
Pennsylvania	105,415	84,760	1.2
Rhode Island	9,369	5,815	1.6
South Carolina	36,337	26,996	1.3

65

	Number of FTE teachers	Total number of FTE staff other than teachers	Ratio of FTE teachers to all FTE staff other than teachers
South Dakota	8,191	5,938	1.4
Tennessee	42,824	43,225	1.0
Texas	199,397	133,551	1.5
Utah	17,611	13,740	1.3
Vermont	6,852	5,107	1.3
Virginia	62,138	58,065	1.1
Washington	40,279	32,238	1.2
West Virginia	21,653	17,754	1.2
Wisconsin	49,329	34,232	1.4
Wyoming	6,697	6,724	1.0
Hawaii	**8,866**	**5,857**	**1.5**

Range of state ratios of FTE teachers to all FTE staff other than teachers* = 7.2
Mean state ratio of FTE teachers to all FTE staff other than teachers* = 1.37
Median state ratio of FTE teachers to all FTE staff other than teachers* = 1.2
Skewness coefficient* = 5.8
First quartile* = 1.0
Third quartile* = 1.3

*Excluding Hawaii

ENDNOTES

1. Act 190, Session Laws of Hawaii, 1991.

2. U.S., Department of Education, National Center for Education Statistics, Public Elementary and Secondary State Aggregate Data, by State, for School Year 1989-1990 and Fiscal Year 1989, NCES 91-035, Data Series: DR-CCD-89/90-2.1 (Washington, D.C.: April 1991) (hereinafter cited as "Aggregate Data for School Year 1989-1990"), p. 21.

   The Bureau's analyses were based on student membership (enrollment), rather than average daily attendance (ADA), since ADA is not comparable among states because of various statutory reporting procedures. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 20.

3. While the range is the easiest and quickest measure of variability to compute, it is also the most unreliable since only two values are used to compute it.

4. The national averages reported by the NCES are, in essence, weighted state averages. They were computed by taking the quotient of the nation's expenditures for instruction, support services, noninstruction, and direct support, and the nation's student membership. The Bureau computed mean state per pupil expenditures to give equal weight to all the states and the District of Columbia and allow for more meaningful interstate comparisons of per pupil expenditures. The Bureau excluded Hawaii from its computations of mean state per pupil expenditures since the purpose of this particular analysis was to compare Hawaii to the other forty-nine states and the District of Columbia, rather than to compare Hawaii to the United States. While the exclusion of Hawaii is controversial, it is conceptually consistent with the purpose of the Bureau's analysis, which is the compare Hawaii to the other states and the District of Columbia.

5. The median or second quartile (Q_2) was operationally defined as the $(2[n+1]/4)$th value. Linear interpolation was employed when the median occurred between successive values. Like the mean, the median is a measure of central tendency; however, unlike the mean, the median is not affected by extreme values.

6. Skewness coefficients generally range from -3 to +3, with zero indicating a perfectly symmetrical distribution. A positive skewness coefficient (e.g., +1) indicates that the values in a particular distribution are concentrated below the mean. In practical terms, it means that there are a few very high values in the distribution. These high values result in the mean being greater than the median. A negative skewness coefficient (e.g., -1) would indicate just the opposite, that is, the concentration of values above the mean, the presence of a few very low values, and the mean being less than the median. A skewness coefficient of zero indicates a perfectly symmetrical distribution. For the purposes of this study, skewness was used to justify the Bureau's use of the median rather than the mean as the measure of central tendency.

   Theoretically, a skewness coefficient not equal to zero denotes a lack of symmetry. Skewness, however, does not automatically make the use of the median preferable to the mean; skewed or not, the mean for a particular distribution is the "average" value for that distribution. The median is considered by some statisticians to be preferable to the mean when a distribution exhibits signs of skewness. There is, however, no agreed upon point at which the median becomes preferable to the mean.

7. The first quartile (Q_1) and third quartile (Q_3) were operationally defined as the $(1[n+1]/4)$th value and the $(3[n+1]/4)$th value, respectively. Linear interpolation was employed when the quartiles occurred between successive values.

BEST COPY AVAILABLE

8. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 4.

9. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 4.

10. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 4.

11. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

12. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

13. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

14. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 6-7.

15. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 2.

16. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 2.

17. Act 190, Session Laws of Hawaii, 1991.

18. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 9 and 12-13.

19. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 12-13.

20. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 4

21. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

22. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 12-13.

23. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

24. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 5.

25. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 12-13.

26. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 6

27. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, p. 7.

28. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 12-13.

29. Telephone interview with Randall Honda, Common Core Data Coordinator, Department of Education, Office of the Superintendent, Honolulu, Hawaii, August 8, 1991.

30. Letter from Randall Honda, Common Core Data Coordinator, Hawaii, Department of Education, Office of the Superintendent, to Jo Ann Davis, U.S., Department of Education, National Center for Education Statistics, May 17, 1990.

31. Letter from Randall Honda, Common Core Data Coordinator, Hawaii, Department of Education, Office of

the Superintendent, to John Sietsema, U.S., Department of Education, National Center for Education Statistics, March 21, 1990.

According to Honda, no employees were excluded from the State Nonfiscal Survey Honda, interview, supra note 29.

32. U.S., Department of Education, "Aggregate Data for School Year 1989-1990", supra note 2, pp. 12-13.

33. Act 190, Session Laws of Hawaii, 1991.

CHAPTER 5

ACCOUNTABILITY

> ...[T]he legislative reference bureau is requested to conduct a study of public school funding, including such aspects as the appropriateness [emphasis added] of the current system of resource allocation and accountability in the department of education....[1]

Introduction

The purpose of this chapter is to assess the utility of the current system of accountability in the DOE. This chapter focuses on the regular instruction program of the DOE. Although the regular instruction program is just one of seventeen current services programs within the DOE, it is the single largest current services program in the department. The Bureau has no particular expertise or ability to assess the suitability (appropriateness) of the current system of accountability in the DOE. A finding of "appropriateness" also implies a search for "inappropriateness", which appears to be more in keeping with the nature of an audit.

This chapter reviews the relationship among the regular instruction program, foundation program objectives, performance expectations, essential competencies, competency-based measures, and the Hawaii State Test of Essential Competencies. It also discusses the status of the competency-based measures for grades 3, 6, 8, and 10; reviews the background of the Educational Assessment and Accountability System; and discusses the applicability of the Educational Assessment and Accountability System to the regular instruction program.

The Nature of Accountability

According to Paul Hill and Josephine Bonan:[2]

> Accountability describes a relationship between two parties in which four conditions apply: One party expects the other to perform a service or accomplish a goal; the party performing the activity accepts the legitimacy of the other's expectation; the party performing the activity derives some benefits from the relationship; and the party for whom the activity is performed has some capacity to affect the other's benefits. [citation deleted]
>
> Accountability is the essence of a contractual relationship in which both parties have obligations and derive benefits. People can be accountable only if they feel bound by some agreement that establishes a fair exchange of benefits and obligations between two parties.

Foundation Program Objectives, Performance Expectations, Essential Competencies, and the Regular Instruction Program

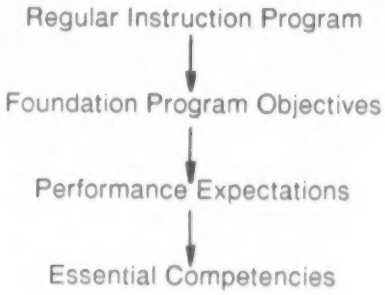
The Relationship Between Foundation Program Objectives, Performance Expectations, and Essential Competencies. The relationship between foundation program objectives (FPOs), performance expectations (PEs), and essential competencies (ECs), is described by the DOE in the following manner:[3]

> Clear and realistic student goals which provide direction and focus for classroom instruction are basic to the improvement of curriculum and instruction.
>
> Goals include the Foundation Program Objectives, Performance Expectations, Essential Competencies, and instructional area objectives. These goals reflect the purposes, or the ends, of education stated in differing degrees of specificity.
>
> * Broad goals for education, established by the Department of Education starting with the eight Foundation Program Objectives, serve as the basis for curriculum and instruction in Hawaii's public schools.
>
> * Because of the general way in which these objectives are stated and in response to the need to define and specify outcomes, Performance Expectations are identified. Performance Expectations specify important competencies expected of students as they progress toward the attainment of the eight [eleven] Foundation Program Objectives. They have been developed for grades 3, 6, 8, 10, and 12.
>
> * To insure that every high school student attain proficiencies necessary to function in the adult world, fifteen [sixteen] competencies were derived from the Performance Expectations and publicly validated as minimum requirements for becoming productive and contributing members of society. These fifteen [sixteen] are referred to as Essential Competencies, some of which are expected to be mastered as early as grade 3 and others as late as grade 10.
>
> The Foundation Program Objectives, Performance Expectations, and Essential Competencies serve as benchmarks for the State, with more specific instructional goals or objectives written by teachers and administrators to address the school program, subject departments, grade levels, class, and even individual students.

The Objective of the Regular Instruction Program. The objective of the regular instruction program is to:[4]

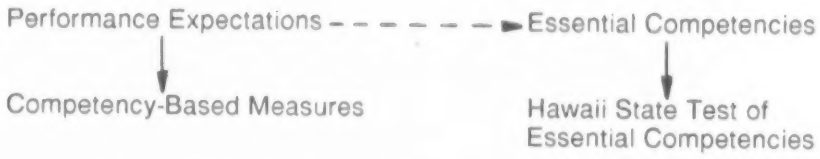
> ...[A]ssure that eligible children achieve Foundation Program goals through development of: 1) basic skills for learning and effective communication; 2) positive self-concept; 3) decision-making and problem-solving skills; 4) independence in learning; 5) physical and emotional well-being; 6) recognition and pursuit of career potential; 7) philosophy of responsibility to self and others; 8) creative potential and aesthetic sensitivity.

The relationship between the regular instruction program, FPOs, PEs, and ECs, can be illustrated in the following manner:



To assess student progress in achieving the PEs and to measure the effectiveness of the regular instruction program, the DOE embarked on a program during the early 1980's to develop competency-based measures (CBMs) for grades 3, 6, 8, and 10. According to the DOE, the CBMs for grade 3 were first administered in 1982.[5]

The relationship between the PEs and the CBMs, and the PEs, ECs, and Hawaii State Test of Essential Competencies (HSTEC), can be illustrated in the following manner:



The HSTEC is roughly analogous to the CBMs. While the former is designed to assess mastery of the ECs, the latter is designed to assess student progress in achieving the PEs.

Competency-Based Measures

Although the stated measures of effectiveness for the regular instruction program make specific reference to eight FPOs and the CBMs for grade 3,[6] the DOE recently suspended both the administration of the CBMs for grade 3 and the piloting of the CBMs for grades 6, 8, and 10.[7]

Although the DOE had piloted and administered the CBMs for grade 3, the DOE was unable to integrate data from the grade 3 CBMs with data from the Stanford Achievement Test. According to the DOE, the problem with data integration was due partly to the design of the student identification system employed by the DOE and the limitations of the computer

program used to match student identification numbers. Student identification numbers, which were filled in by students, were frequently misreported and could not be matched by computer. Also, the computer program utilized by the DOE was unable to consistently match student identification numbers even when the numbers were reported correctly. Consequently, a student's performance on the grade 3 CBMs could not be matched to the student's performance on the Stanford Achievement Test.[8]

In addition, the DOE reported that the CBMs for grade 3 were not well received by some teachers since it required the teachers to maintain observation logs for their specific grade-level students; took approximately fifty percent more time for the students to complete than originally estimated; and was administered close to the end of the school year when the additional demands on instructional time became an imposition on teachers.

It appears that many of the difficulties encountered by the DOE in administering the CBMs for grade 3 were largely unavoidable. For example, it would have made little sense for the DOE to administer the CBMs at the beginning of or midway through the school year when the PEs describe what students are expected to attain by the end of grades 3, 6, 8, 10, and 12.[9] Administering the CBMs to students upon their return from summer vacation would have been equally unsatisfactory because of the learning regression that occurs during summer vacation. Because the reliability[10] of a test is directly related to the number of items on the test (i.e., its length), developing a test that is both practical (i.e., not indefinitely long) and reliable is not always possible.[11] Additionally, since the validity[12] of a test is directly related to the nature of the test itself, using a computer-scored, multiple-choice test to assess student progress in achieving the PEs is not always possible or desirable.

The lack of administrable CBMs for assessing student progress in achieving the PEs makes it difficult (but not entirely impossible) to assess the effectiveness of the regular instruction program, which includes language arts, mathematics, physical education, health, science, art, music, social studies, guidance, foreign languages, practical arts, and vocational-technical education.[13] Although the CBMs are indispensable for measuring the effectiveness of the regular instruction program, the CBMs cannot be used unthinkingly to validate perceived causal associations between changes in the regular instruction program and changes in student progress in achieving the PEs. Factors such as the strength of the association,[14] consistency of the association,[15] temporal correctness of the association,[16] specificity of the association,[17] and coherence with existing information,[18] must be thoughtfully considered when attempting to validate perceived causal associations between changes in the regular instruction program and changes in student progress in achieving the PEs.

While it is possible to utilize the HSTEC, the Stanford Achievement Test, and other measures, e.g., the National Assessment of Educational Progress (NAEP) and the College Entrance Examination Board's Scholastic Aptitude Test, as proxies for the CBMs, the HSTEC and Stanford Achievement Test are relatively limited in utility since the former measures only minimum competencies and the latter measures only reading and mathematics performance. The HSTEC is useful in measuring the effectiveness of the regular instruction program only to the extent that the ECs, which are assessed by the HSTEC, are derived from the PEs, which are assessed by the CBMs. Similarly, the Stanford Achievement Test is useful in measuring the effectiveness of the regular instruction program only to the extent that the regular instruction program consists of reading and mathematics.

Although the NAEP Trial State Assessment Program is not limited to reading and mathematics like the Stanford Achievement Test, the NAEP Trial State Assessment Program assesses a representative (random) sample of Hawaii's public school students rather than all eligible Hawaii public school students like the Stanford Achievement Test.[19] (The NAEP 1990 Trial State Assessment was limited to grade 8 mathematics.) While the Scholastic Aptitude Test (not to be confused with the Stanford Achievement Test) has been used by the U.S. Department of Education and other investigators to assess the verbal and mathematics performance of students according to states, school districts, and schools, these kinds of comparisons constitute a gross misuse of the Scholastic Aptitude Test. According to the College Entrance Examination Board, publishers of the Scholastic Aptitude Test:[20]

> As measures of developed verbal and mathematical abilities important for success in college, SAT [Scholastic Aptitude Test] scores are useful in making decisions about individual students and in assessing the academic preparation of individual students. Using these scores in aggregate form as a single measure to rank or rate teachers, educational institutions, districts, or states is invalid because it does not include all students. And in being incomplete, this use is inherently unfair.
>
> * * *
>
> In looking at average SAT [Scholastic Aptitude Test] scores, the user must understand the context in which the particular test scores were earned. Other factors variously related to performance on the SAT [Scholastic Aptitude Test] include academic courses studied in high school, family background, and education of parents. These factors and others of a less tangible nature could very well have a significant influence on average scores.

Although there have been and continue to be attempts to utilize multiple linear regression[21] to control for differences in participation rates (i.e., the percentage of eligible students taking the Scholastic Aptitude Test), socio-economic status, ethnicity, etc., amongst states, school districts, and schools, these attempts have been and continue to be highly controversial and no one particular method appears to have gained general acceptance amongst all investigators.[22] Additionally, and perhaps more importantly, no attempt has been made or appears to be in the making to validate (i.e., field test) the regression equations (i.e., models) used by investigators to improve the comparability of Scholastic Aptitude Test scores amongst states, school districts, and schools. Consequently, the predictive validity of the regression equations and the results that they yield must be accepted on faith.

One important limitation of norm-referenced tests, such as the Stanford Achievement Test and the Scholastic Aptitude Test, is that they are designed for the expressed purpose of placing students in rank order or comparing them with other students. Unlike criterion-referenced tests, which are designed to tell what a student knows, understands, or can do in relation to specific objectives that are expected to be realized, norm-referenced tests must be periodically revised to ensure that the test is capable of discriminating between students of differing abilities. The obvious limitation of tests so revised is that longitudinal comparisons of test results may fail to reveal improvements in student achievement. Another important

limitation of norm-referenced tests is that they tend not to measure the specific content of the instruction provided in the program in question.[23]

Educational Assessment and Accountability System

Background. In response to Act 371, Session Laws of Hawaii 1989, and the final report of the Legislative Auditor regarding the evaluation of the administrative flexibility legislation affecting the DOE and the University of Hawaii (Acts 320 and 321, Session Laws of Hawaii 1986), the DOE prepared for submission to the 1990 Legislature a five-year implementation plan for educational assessment and accountability.[24]

According to the DOE, the major purposes of the educational assessment and accountability system (EAAS) are to:[25]

(1) Provide information about schools' performance for public accountability;

(2) Inform educational policy development; and

(3) Improve educational quality by influencing local practice and improvement efforts.

The goals and objectives of the EAAS, according to the DOE, are to:[26]

* Establish a statewide system of educational assessment and accountability to systematically examine the health and quality of Hawaii public education.

* Institute public accountability through periodic reports on public education to the community-at-large (parents, businesses, taxpayers).

* Inform educational policymakers and educators about the condition, performance and progress of Hawaii public education.

* Work collaboratively with the University of Hawaii system to coordinate educational assessment activities between the Department and higher education.

Perhaps most illustrative of the overall thrust of the EAAS is the DOE's description of the analysis component of the EAAS:[27]

> The analysis component of the present design must include three analytic functions necessary to operationalize the use of indicators for the purpose of providing policy-relevant information about schools' performance: (1) describe performance to answer the question "What is happening?"; (2) relate performance to inputs and context variables to answer the question "Why might it be happening?"; and (3) compare performance to answer the question "Is it adequate?"

While the EAAS implementation plan does not explicitly discuss a mechanism or the development of a mechanism for linking assessment, analysis, and accountability to some system of programming, planning, budgeting, and management (which is not to say that such a mechanism does not already exist), the Bureau believes that the implementation of SCBM will eventually cause the DOE to adapt the existing PPB system to meet the informational demands of school communities or to develop a quasi-PPB system of its own design. The Bureau believes that such a system, whether it be PPB or some variant thereof, will help school communities to make the most of the analysis component of the EAAS. To this end, it is important that the system serve the varied needs of different school communities. Given the period of time encompassed by the EAAS implementation plan, the Bureau believes that the DOE should begin discussing this mechanism or the development of this mechanism in order to ensure the timely deployment of a useful educational assessment and accountability system.

One important output of the DOE with respect to the research and development of the EAAS has been the completion of working papers on:

(1) The educational accountability systems in other states;[28]

(2) The classification of indicators for educational assessment and accountability according to their presumed relationships;[29]

(3) A proposed method for assessing school performance;[30]

(4) The use of regression residual analysis in determining school quality;[31]

(5) The documentation of data for the School Status and Improvement Report (SSIR);[32] and

(6) The use of education revenues and expenditures as process indicators.[33]

Besides examining key conceptual and technical issues, the six working papers help to place the speed at which the DOE is researching and developing the EAAS into perspective. The Bureau notes that the mere existence of other state assessment and accountability systems does not automatically vouch for their validity or reliability. Further, an assessment and accountability system that is valid and reliable for one state may not be valid and reliable for another state because of differences in program structure and data gathering ability. While the examination and resolution of conceptual and technical problems are of great importance to the successful implementation of the EAAS, the DOE and the Legislative Auditor are presently at odds over the speed at which the DOE is researching and developing the EAAS.[34]

First of all, the Bureau notes that the Legislature would be well within its right to demand that the DOE speed up development of the EAAS. The Bureau believes that the six working papers completed by the DOE provide sufficient information for the Legislature to make an informed choice between the need for immediacy and the need for quality with respect to the development of the EAAS. If the Legislature chooses the need for immediacy over the need for quality, then the Legislature should be prepared to accept the quality of the product developed by the DOE. Conversely, if the Legislature chooses the need for quality over the need for immediacy, then the DOE should be prepared to accept responsibility for the quality of the product delivered to the Legislature. Balancing the need for immediacy with

the need for quality is a particularly sensitive task since the Legislature is, in essence, balancing the interests of school communities (i.e., students, teachers, school administrators, etc.), against its own interests.

Of the two competing needs mentioned above, the need for quality is of primary importance to school communities since the success or failure of SCBM will be judged to some degree by the EAAS. Although the EAAS could be deployed with carefully worded caveats and disclaimers to attempt to minimize certain quality-related problems, history has shown that the lay public pays very little, if any, attention to these caveats and disclaimers. A poignant example of the public's total disregard for these caveats and disclaimers can be found in the annual ranking of states according Scholastic Aptitude Test scores. Although repeatedly and unambiguously condemned by both the DOE and the College Entrance Examination Board as being unfair, the news media and U.S. Department of Education continued this contentious practice for many years.

On the other hand, the Bureau believes that it would be totally unrealistic for the DOE to withhold the EAAS from the Legislature until such time as the DOE is totally satisfied with the quality of the EAAS. The EAAS should be deployed in functional increments that will be useful to the Legislature, school communities, and the DOE. Deciding what these increments should be and when they should be deployed is difficult, if not practically impossible, to predict. Although the research and development of the EAAS should not and probably cannot be held to a rigid schedule, the Bureau believes that the Legislature and the DOE should come to some tentative agreement on the incremental deployment of the EAAS.

Applicability of the EAAS to the Regular Instruction Program, FPOs, PEs, and ECs.

According to the DOE:[35]

> The current assessment and accountability plan is based on the straightforward idea of combining and building on selected data elements from existing assessment and accountability mechanisms in order to broadly but comprehensively examine schools' performance outcomes. Also, the present plan is more closely related to some of the existing accountability mechanisms (e.g., student testing, program evaluation, curriculum reviews) than to others (e.g., compliance monitoring, fiscal or management audits). Important to note is that the intent of the current plan is not to integrate the various assessment and accountability activities already in place, but rather to integrate selected information.

Although the DOE proposes to use the EAAS to guide the Department's program planning and budget development efforts in the future,[36] the EAAS implementation plan makes no mention of the regular instruction program, FPOs, PEs, or CBMs. (The Bureau notes that a reexamination of curriculum and student assessment is presently underway within the DOE.) Given the fact that the EAAS is designed to provide school-level assessment and accountability reports rather than program-level assessment and accountability reports,[37] it would appear that integration of the EAAS with the State's PPB system will not be a high priority objective for the DOE.

The DOE appears to be developing two separate assessment and accountability systems; one focused on program-level performance outcomes and another focused on school-level performance outcomes. The "School Status and Improvement Report" (SSIR) is an example of the DOE's ongoing efforts to develop and improve upon an assessment and accountability system focused on school-level performance outcomes.[38] Likewise, the RFP for the development and validation of standardized tests to replace the CBMs is an example of the DOE's ongoing efforts to develop and improve upon an assessment and accountability system focused in program-level performance outcomes. While the development of two assessment and accountability systems is not necessarily redundant or wasteful, the Bureau believes that the utility of the different levels of data that will be generated by the two systems should be explained in greater detail.

The Bureau notes that school-level data can provide important information on how individual schools are performing in relation to the objective of the regular instruction program, FPOs, PEs, and CBMs, e.g., percentage of schools with more than seventy-five percent of the students in grade 3 meeting the criteria for foundation program objective I. This level of assessment and accountability is consistent with the demands of SCBM, which shifts a substantial degree of decision making authority from the state and district levels to a school's community. On the other hand, program-level data can also provide important information on how different instructional programs are performing in relation to the objectives of the regular instruction program, FPOs, PEs, and CBMs, e.g., percentage of students in grade 3 meeting the criteria for foundation program objective I. This other level of assessment and accountability is consistent with the demands of PPB, which is designed to facilitate program planning, budgeting, and management decisions as they relate to spending.

Although school-level assessment and accountability reports will probably be most useful to the DOE and the Board of Education because of their respective roles in monitoring the implementation of SCBM, this does not preclude the Legislature from using these reports to make decisions relating to program planning, budgeting, and management. Similarly, while program-level assessment and accountability reports will probably be most useful to the Governor and the Legislature, this does preclude the DOE and the Board of Education from using these reports to make decisions relating to the implementation of SCBM. In view of the State's current commitments to SCBM and PPB, the Bureau believes that the development of two separate systems of assessment and accountability is consistent with the respective information demands of SCBM and PPB.

The development of two separate assessment and accountability systems may provide additional opportunities to conduct educational research. As previously discussed, the likelihood of an association being perceived as causal is increased when the same association is uncovered using different study methods.[39] The Bureau believes that the development of linkages between these two assessment and accountability systems should be carried out concurrently, if possible, to maximize the usefulness of the final products to the DOE, the Board of Education, the Legislature, and the Governor. While the development of separate assessment and accountability systems may produce conflicting data on performance outcomes, this is not necessarily undesirable since conflicting data can be equally significant.

Discussion

Although the Legislature and the DOE could continue to debate the appropriateness of the EAAS, the Bureau believes that the crucial issue confronting the Legislature at this time is whether or not school communities should be permitted to implement SCBM without the EAAS in whole or in increments. Without the EAAS, how will school communities--much less the DOE and the Legislature--know whether SCBM is succeeding or failing? While the success or failure of SCBM will not be evaluated solely on the basis of the EAAS (school status and improvement reports are to also be considered), the EAAS will play an important role in the evaluation of SCBM schools and, consequently, the evaluation of SCBM itself. The implementation of SCBM without the EAAS would be tantamount to undertaking a new program without having first developed a plan for its evaluation. While it may be justifiable to "salvage" an evaluation (i.e., conduct a retrospective study) on a relatively minor program, SCBM is definitely not a minor program. SCBM is, in fact, a major education reform. Conducting a retrospective study on the success or failure of SCBM when a prospective study could have been conducted instead would be difficult for anyone to justify.

Consequently, the Bureau believes that the following policy-related question should be addressed by the Legislature, "Should school communities be permitted to implement SCBM without having in place a functioning educational assessment and accountability system?"

Summary

According to Michael Kirst:[40]

> ...[T]hroughout history education policy has advanced through incremental or trial and error stages, sometimes called "disjointed incrementalism." Accountability is an excellent example of this process....
>
> * * *
>
> While accountability has recently been "rediscovered" and has gone through yet another transformation and refinement, it actually has a long history of use, misuse, and controversy.
>
> * * *
>
> ...With the arrival of the 20th century, scientific measurement and appropriate grade placement were featured from 1915 to 1930, and this movement overlapped with the 1920s "cult of efficiency," which applied business cost-accounting techniques to the solution of many education problems [citation deleted]. It would be another half-century, however, before educators witnessed the advent of the U.S. accountability movement's bible, Leon Lessinger's book, *Every Kid a Winner*, [citation deleted] which appeared in 1970 and stressed the same kind of cost-accounting strategies that had been popular decades earlier.

> Like his predecessors, Lessinger wanted learning stated in quantifiable terms that could be related to cost statements. However, his thinking was also in tune with that of his own era, since the 1960s and early 1970s featured Program Planning Budgeting Systems (PPBS) and Management by Objectives (MBO) as favored strategies for accountability. These were followed in 1977 by President Carter's Zero Based Budgeting (ZBB). All of these budget techniques were resisted by school boards and local educators and have disappeared with barely any residue [citation deleted].
>
> In sum, both the early 20th century and the recent accountability movements highlighted: (1) business as the model for educators to emulate; (2) objective measures as the primary criterion for educational evaluation; and (3) sophisticated accounting procedures and cost control as crucial for improving education.
>
> * * *
>
> Beginning in 1983, however, school reforms brought with them still another wave of accountability legislation, focusing this time on such concepts as school report cards, merit schools, outcome-based accreditations, and interstate achievement comparisons. While the names have changed, these concepts are offshoots of the historical evolution. Therefore, while history demonstrates that effective and long-lasting accountability programs are possible, it also shows that maintaining them requires both a sophisticated understanding of past experience and a committed political constituency. In addition, even well-designed accountability techniques must be implemented through a loosely coupled administrative system that includes a complex web of State and local school control. That makes it difficult to predict the impact of a specific accountability policy upon classroom practice and provides numerous political constituencies as potential roadblocks....

Assuming that the debate over the "appropriateness" of the DOE's current system of accountability is not likely to be resolved in the foreseeable future, the Bureau believes that the Legislature and the DOE can better resolve the issue by reaching an agreement over what constitutes a "useful" system of accountability rather than attempting to determine whether the current system of accountability is appropriate or inappropriate. If Michael Kirst is correct about the advancement of educational policy throughout history, then the appropriateness or inappropriateness of the DOE's current system of accountability will mean very little in the long run.

ENDNOTES

1. Act 296, Session Laws of Hawaii, 1991.

2. Paul Hill and Josephine Bonan, Decentralization and Accountability in Public Education, R-4066-MCF/IET (California, Rand Institute for Education and Training: 1991), p. 35.

3. Hawaii, Department of Education, Student Outcomes for the Foundation Program for the Public Schools of Hawaii, RS 86-0905 (November 1986)(hereinafter cited as "Student Outcomes for the Foundation Program"), pp. 1-2.

   In May 1991, the foundation program objectives (FPOs) were amended and expanded from eight to eleven. The essential competencies (ECs) were also amended and expanded from fifteen to sixteen at the same time. Memorandum from Mildred Higashi, Acting Assistant Superintendent, Hawaii, Department of Education, Office of Instructional Services, to District Superintendents, Assistant Superintendents, and Principals, July 26, 1991.

   According to the DOE, PEs can be thought of as statements of desired student behavior. Each performance expectation specifies a behavior that requires the application of knowledge, skills, or attitudes. For each foundation program objective, PEs collectively serve to describe the breadth and depth of a student's desired achievement and progress. Although individual student levels of achievement will vary, the DOE notes that it is obligated to take each student to the student's highest level of achievement. Hawaii, Department of Education, Student Performance Expectations of the Foundation Program, RS 78-6054 (August 1978), p. 7.

4. State of Hawaii, The Multi-Year Program and Financial Plan and Executive Budget For the Period 1991-1997 (Budget Period: 1991-93), Volume II (December 1990)(hereinafter cited as "Multi-Year Program and Financial Plan and Executive Budget"), p. 1155.

5. Telephone interview with Selvin Chin-Chance, Test Development Specialist, Department of Education, Office of the Superintendent, Honolulu, Hawaii, August 1991.

6. State of Hawaii, "Multi-Year Program and Financial Plan and Executive Budget", supra note 4, p. 1154.

7. Chin-Chance, interview, supra note 5.

   According to Chin-Chance, a request for proposal (RFP) is presently being written for the development and validation of standardized tests to replace the CBMs. Further, the DOE's efforts to develop, validate, pilot, and administer the CBMs for grades 3, 6, 8, and 10, received no additional funding support from either the Legislature or the Board of Education.

8. Chin-Chance, interview, supra note 5.

9. PEs for grades K, 1, and 2 have also been developed for foundation program objective I: develop basic skills for learning and effective communication with others. The PEs for grades K, 1, and 2 were developed to assist teachers and administrators in early identification and intervention for basic skills development. Hawaii, Department of Education, "Student Outcomes for the Foundation Program," supra note 3, p. 3.

10. Some error is involved in any type of measurement. Measurement error occurs systematically or randomly and both types of error limit the certainty to which student progress in achieving the PEs can be measured. Overly simplified, tests are considered to be "reliable" if measurement error is slight and consistent in measuring student progress in achieving the PEs.

11. See Guilford's discussion on the use of the Spearman-Brown formula to lengthen a test to attain a certain desired reliability. J.P. Guilford, Fundamental Statistics in Psychology and Education, 3rd ed. (New York: McGraw-Hill Book Company, Inc., 1956), p. 458.

12. Overly simplified, tests are considered to be valid if they measure what they are designed to measure.

13. The practical arts and vocational-technical programs of the DOE include home economics, industrial arts, industrial-technical, agriculture and business subjects. State of Hawaii, "Multi-Year Program and Financial Plan and Executive Budget", supra note 4, p. 1155.

14. Strength of association dictates that a change in student progress in achieving the PEs should be greatest for those students affected by a change in the regular instruction program and smallest for those students not affected by a change in the regular instruction program. The likelihood of a causal association is strengthened if increasing levels of a change in the regular instruction program correspond to increasing levels of a change in student progress in achieving the PEs. On a cautionary note, the opportunity to experiment with students in a rigidly controlled environment rarely presents itself because of moral and ethical issues. While natural experiments are more common, they are relatively difficult to control since very little can be done to affect their design.

    See Judith Mausner and Anita Bahn, Epidemiology: An Introductory Text (Pennsylvania: W.B. Saunders Company, 1974), pp. 100-103, regarding causal associations and criteria for judging whether associations are causal. The Bureau's discussions on strength of the association, consistency of the association, temporal correctness of the association, specificity of the association, and coherence with existing information, are based substantially on the work of Mausner and Bahn.

15. Consistency of association dictates that the association between a change in the regular instruction program and a change in student progress in achieving the PEs be consistent under other circumstances, with other study populations, and with different study methods. The more often the association appears under diverse circumstances, the more likely it is to be causal in nature. On a cautionary note, systematic error occurring in multiple studies can produce an apparent but spurious consistency.

16. Temporal correctness dictates that a change in student progress in achieving the PEs should be preceded by a change in the regular instruction program. On a cautionary note, temporal correctness should be consistent with any necessary period of induction and latency.

17. Specificity of association dictates that there should be a one-to-one relationship between a change in the regular instruction program and a change in student progress in achieving the PEs. The problems with this criterion are that a change in student progress in achieving the PEs can be caused by alternative changes in the regular instruction program or by cumulative changes in the regular instruction program. In the former instance, the changes in the regular instruction program act independently of one another to cause a change in student progress in achieving the PEs. In the latter instance, the changes in the regular instruction program act collectively to cause a change in student progress in achieving the PEs since no one change in the regular instruction program is sufficient by itself to produce a change in student progress in achieving the PEs.

18. Coherence with existing information dictates that a change in student progress in achieving the PEs should be consistent with current knowledge about the regular instruction program and the change in the regular instruction program. On a cautionary note, "paradigms" (i.e., the general theoretical assumptions and laws and techniques for their application that the members of a particular scientific community adopt), may cause findings that cannot be incorporated into the existing body of knowledge to be regarded at the

outset with extreme skepticism.

See A.F. Chalmers, What is this thing called Science?, 2nd ed. (Saint Lucia, Queensland, Australia: University of Queensland Press, 1976), pp. 89-100, regarding Kuhn's paradigms.

19. The National Assessment of Educational Progress (NAEP) Trial State Assessment Program is limited to public school students. Chin-Chance, interview, supra note 5.

Thirty-seven states, the District of Columbia, and the territories of Guam and the Virgin Islands, have volunteered to participate in the trial state assessment, which began in 1990. Prior to the inception of the trial state assessment program, NAEP data were aggregated and reported at the national and regional level.

Data from the NAEP are not very useful in measuring the effectiveness of the State's regular instruction program unless the results are aggregated and reported at the state level or lower (e.g., by school district or school).

20. College Entrance Examination Board, Guidelines on the Uses of College Board Test Scores and Related Data, Reprint (New York: 1988), 2 pp.

Although the College Board states that average Scholastic Aptitude Test scores can be used to reveal longitudinal trends in the academic preparation of students taking the test, this methodology is based on the assumption that the students taking the test are essentially identical in nature from one year to another. While a more useful methodology would be to track the academic progress of a well-defined cohort of students from one year to another, the Bureau notes that the Scholastic Aptitude Test was not designed for this purpose.

21. Multiple linear regression (MLR) is a statistical technique for analyzing the relationship between a criterion or dependent variable (e.g., Scholastic Aptitude Test score) and a set of predictor or independent variables (e.g., participation rate, socio-economic status, ethnicity, etc.). The most common uses of MLR are to identify the best set of independent variables that contribute to the prediction of a dependent variable, to control for the effects of confounding variables in order to evaluate the specific relationship between a dependent variable and an independent variable, and to determine the relationship between a dependent variable and several independent variables simultaneously. Hawaii, Department of Education, Educational Assessment and Accountability: Implementation Plan (1990-1994), RS 91-9767 (October 1989) (hereinafter cited as "EAAS Implementation Plan"), pp. 33-34.

See P. Armitage, Statistical Methods in Medical Research (Oxford, England: Blackwell Scientific Publications, 1971), pp. 302-303, regarding other uses of MLR.

MLR has been used extensively by investigators for a number of years to account and adjust for the effects of confounding variables in order to generate expected Scholastic Aptitude Test scores that reflect the known differences between states, school districts, and schools.

22. See Howard Wainer's discussion of the U.S. Department of Education publication entitled "State Education Statistics" (otherwise known as the "Wall Chart"), which contains a variety of education indicators, among them average Scholastic Aptitude Test scores or American College Test scores for each state. Howard Wainer et al., "On 'State Education Statistics'", Journal of Educational Statistics, Vol. 10, No. 4 (Winter 1985), pp. 293-325.

BEST COPY AVAILABLE

See Stephan Gohmann's discussion on the different methods used to improve the comparability of state Scholastic Aptitude Test scores. Stephan Gohmann, "Comparing State SAT [Scholastic Aptitude Test] Scores: Problems, Biases, and Corrections", Journal of Educational Measurement, Vol. 25, No. 2 (1988), pp. 137-148.

For additional information on drawing inferences from self-selected samples, see Howard Wainer, ed., Drawing Inferences from Self-Selected Samples (New York: Springer-Verlag, 1986), p. 175.

23. Hawaii, Department of Education, The Guide (Planning for an Evaluation), RS 78-5767 (May 1978), pp. 54-57.

Telephone interview with Thomas Gans, Evaluation Specialist, Department of Education, Office of the Superintendent, Honolulu, Hawaii, December 27, 1991.

24. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, p. 1.

25. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, pp. iii-iv.

26. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, p. 19.

27. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, p. vii.

28. Hawaii, Department of Education, "Working Paper #1: Review of Educational Accountability Systems in Other States" (May 1989), 20 pp.

29. Hawaii, Department of Education, "Working Paper #2: A Taxonomy of Indicators for Educational Assessment and Accountability" (August 1989, Revised October 1990), 16 pp.

30. Hawaii, Department of Education, "Working Paper #3: Proposed Method for Assessing School Performance" (August 1989, Revised October 1989), 5 pp.

31. Hawaii, Department of Education, "Working Paper #4: A Review of Regression Residual Analysis Used in Determining School Quality" (Draft)(October 1990), 6 pp.

32. Hawaii, Department of Education, "Working Paper #5: Data Documentation for the School Status and Improvement Report" (December 1990), 5 pp.

33. Hawaii, Department of Education, "Working Paper #6: Review and Analysis of Education Revenues and Expenditures: Proposals for establishing several key process indicators" (Draft)(June 1991), 19 pp.

34. Hawaii, Office of the Legislative Auditor, Status Report on Administrative Flexibility Granted to the University of Hawaii and the Department of Education, Report No. 91-8 (February 1991), pp. 13-14.

35. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, pp. 4-5.

36. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, p. 17.

37. Hawaii, Department of Education, "EAAS Implementation Plan", supra note 21, p. 13.

38. Hawaii, Department of Education, "The Superintendent's Report on School Performance and Improvement in Hawaii: Toward Indicators of Educational Quality, 1990" (October 1990), 21 pp.

39. Supra note 15.

40. Michael Kirst, Accountability: Implications for State and Local Policymakers, Policy Perspectives Series (Washington D.C.: U.S., Department of Education, Office of Education Research and Improvement, July 1990), pp. 3-4.

CHAPTER 6

ALLOCATION

Introduction

As previously noted in Chapter 5, the Bureau has no particular expertise or ability to assess the suitability (appropriateness) of the current system of resource allocation in the DOE. A finding of "appropriateness" also implies a search for "inappropriateness", which appears to be more in keeping with the nature of an audit. Consequently, the purpose of this chapter is to assess the equity of the current system of resource allocation in the DOE. Further, the issue of governance, as it relates to resource allocation, is beyond the scope of this study. Findings and conclusions concerning the current system of resource allocation in the DOE should not be construed as an expression of approval or disapproval for any particular structure of governance.

Specifically, this chapter reviews the current system of resource allocation in the DOE with respect to ensuring the equity of educational inputs and educational outcomes; discusses the limitations, advantages, and disadvantages of methodologies attempting to allocate educational inputs to ensure the equity of educational outcomes; and suggests activities that the Legislature may undertake if it chooses to pursue the idea of allocating educational inputs to ensure the equity of educational outcomes.

This chapter also reviews the manner in which resources are currently appropriated by the Legislature; discusses how the needs of special student populations are currently addressed by the DOE and the Legislature; describes the use of enrollment allocation weights to allocate resources for special student populations and to develop school budgets; and points out the advantages and disadvantages of using an enrollment allocation weights and formula approach to budgeting.

Finally, this chapter discusses the policy decisions that should be addressed by the Legislature with respect to holding school principals, district superintendents, the Superintendent of Education, and the Board of Education, accountable for inequities in educational outcomes.

Equity of Educational Inputs and Educational Outcomes

The allocation of resources and budget execution guidelines for fiscal year 1990-1991 are specified in the DOE report entitled, *Resource Allocation & Budget Execution, Fiscal Year 1990-91.*[1] According to the DOE, the purposes of that report were to:[2]

1. ...inform the Board of Education about the amount of funds and positions included in the General Appropriations Act of 1990;

2. ...apprise the Board of Education about the Governor's allocations and policy guidelines;

3. ...provide the Department's budget execution policies and expenditure plan instructions for 1990-91;

4. ...formally allocate the funds and positions to the various state and district offices, and to the schools; and

5. ...provide the basic rationale and program guidelines for spending.

A cursory review of *Resource Allocation & Budget Execution, Fiscal Year 1990-91*, indicates an emphasis on ensuring the equity of educational inputs among the department's seven school districts and 232 regular schools in the State.[3] Examples of educational inputs, or the personnel and material resources that are available to the school districts and schools for use in meeting the goals and objectives of public education, include, but are not limited to, the number of regular instruction and special education teachers, expenditures for textbooks and supplies, and expenditures for contracted diagnostic services.[4] Other examples of educational inputs include expenditures for curriculum improvement, parent-community networking centers, emergency immigrant education assistance, inservice training for teachers, and learning centers.[5] A substantial portion of the DOE's resources are allocated to the seven departmental school districts based on projected enrollment figures for the upcoming school year. Although a percentage of the resources allocated to the districts may be withheld by the Superintendent of Education and district superintendents, the withheld resources are usually distributed to the school districts based on actual enrollment figures once the school year has commenced.

According to the DOE, a percentage of the resources allocated to the seven departmental school districts may be withheld by the Superintendent of Education in anticipation of unforeseeable events such as:[6]

1. loss of supplies due to fires, floods, and earthquakes.

* * *

2. losses of supplies and equipment due to burglaries and vandalism.

* * *

This percentage can range from a one percent reserve for regular classroom teacher positions to a fifty percent deference for textbooks and supplies.[7] Similar withholdings are also made by district superintendents for the following, when district resources are allocated to individual schools:[8]

1. Funds specifically earmarked for workload increase, that is, new schools, new facilities, the addition of new grade level, new programs, and other such identifiable workload growth. These will be identified separately in the allocations to the districts.

2. Funds to be allocated by the district superintendent to accommodate unique conditions and situations existing at certain schools. [Cross reference deleted] Among such special situations are:

   a. unusually high student turnover rate;

b. extremely large or small school;

c. geographic isolation or population sparsity;

d. new grade or school reorganization (not previously provided under workload increase);

e. new facilities or classroom (not previously provided under workload increase);

f. initiation or continuation of new school program sponsored by the district;

g. school level expenditures budgeted centrally at the district (such as mileage, in-service training, etc.); and

h. other conditions and situations as deemed warranted by the district superintendent.

3. Funds for district reserve. The district superintendent is authorized to withhold up to eight percent of the district's formula allocation. [Cross reference deleted]

Elucidating further on the district superintendent's reserve, the DOE states:[9]

> The districts may have three separate reserve accounts, one for Regular Instruction, one for Instructional Media, and one for School Administration. The total of these reserve accounts should not exceed 8 percent of the district's total allocation. The reserve funds in all three accounts may be used by the district superintendent for the following purposes:
>
> 1. significant school enrollment increase occurring after the September count;
>
> 2. health and safety emergencies;
>
> 3. advance for fire, burglary, vandalism, and other such losses; and
>
> 4. other unforeseen contingencies as deemed warranted by the district superintendent.

While the DOE's system of allocating resources appears to be highly equitable in terms of distributing educational inputs to the seven departmental school districts and 232 regular schools in the State, the DOE appears to lack a quantifiable methodology for ensuring the equity of educational outcomes amongst disparate student populations (e.g., "alienated", "poor English speaking", "low achieving", "special education", and "regular" students). Examples of educational outcomes, or the results of the interaction between students and the public education system, include, but are not limited to, educational attainment and educational achievement. Educational attainment refers to the rate of high school completion

and the percentage of students who drop out of school, whereas educational achievement refers to student achievement as measured by test scores. Other examples of educational outcomes include attendance, grade point average, student interest and confidence in school, successful job placement following graduation, student satisfaction with public education, and scholastic aptitude.[10]

To place the idea of ensuring the equity of educational outcomes into perspective, it is useful to examine the following question: "Should the socio-economic status or, in certain instances, the disability status of a student determine the student's level of educational attainment and educational achievement?" The lack of a quantifiable methodology for ensuring the equity of educational outcomes does not mean that the DOE lacks a methodology for ensuring the equity of educational outcomes or that educational outcomes are not equitable; rather, it means that the methodology is not quantifiable.

While the idea of allocating educational inputs to ensure the equity of educational outcomes is an appealing one, there are several problems that need to be overcome before this idea can be put into practice. For example, not all students are capable of similar levels of educational attainment and educational achievement as described by the performance expectations for the foundation program objectives.[11] If physiological brain differences are responsible for the extraordinary educational achievements of "gifted and talented" students and the learning disabilities of "profoundly mentally retarded" students, then the expected educational outcomes for "gifted and talented" and "profoundly mentally retarded" students should be substantially different from the expected educational outcomes for "regular" students. In contrast, unless physiological brain differences result in learning disabilities or brain dysfunction, the expected educational outcomes for "homebound and hospitalized", "alienated", "poor English speaking", and "low achieving" students should be essentially identical to the expected educational outcomes for "regular" students. Likewise, unless physiological brain differences result in learning disabilities or brain dysfunction, the expected educational outcomes for "deaf", "blind", "orthopedically handicapped", "health impaired", and "speech impaired" students should be essentially identical to the expected educational outcomes for "regular" students.

Although educational attainment and educational achievement can be qualitatively assessed in relation to such general goals as becoming a self-sufficient and productive member of society, disparate levels of educational outcomes tend to hinder the quantitative determination of "equity". While it would seem only proper that the educational outcomes identified for special education students be related, conceptually and statistically, to the educational outcomes identified for regular students, the development of educational outcomes for both special education and "regular" students is still in the formative stage.

According to one group of investigators,[12] there are two prevailing views on whether indicators of outcomes (and consequently outcomes) identified for students receiving special education services should be related, conceptually and statistically, to indicators of outcomes identified for students without disabilities. Many investigators reportedly believe that the indicators used in special education and general (regular) education should be identical to one another. These investigators believe that the same kinds of data should be gathered on all students. To other investigators, it makes little sense to expect that students with disabilities, especially students with very severe disabilities, can or should participate in the assessment system used to gather outcomes data on students who are not disabled. These investigators argue that "different" kinds of data will have to be gathered on students with disabilities, and that a separate assessment system will have to be developed.

According to the same group of investigators,[13] special education is at a point where it is necessary to move beyond the concern with equal access to education, and to concentrate on the quality of educational experiences for children and youth with disabilities. According to these investigators, general (regular) education is proceeding with its own agenda to raise expectations for students and to identify outcomes to be reached by "all" students, and general education policy is being established with limited recognition of students receiving special education services. These investigators argue that in order to maintain the progress that has been made in establishing a viable partnership between general education and special education, policy in special education must be developed along with that in general education, and it must be developed in a way that is maximally integrated with general education. These investigators also argue that if students receiving special education services are not being evaluated on the same or a complementary set of outcomes, then educators and the general public may not see the value of the participation of these students in general education settings. Although the foregoing discussion is limited to special education students, the Bureau believes that it articulates principles that are equally applicable to "gifted and talented", "alienated", "poor English speaking", and "low achieving" students; namely, that there is value in the participation of all students in general education settings.

One limitation of methodologies attempting to ensure the equity of educational outcomes is that all students must be capable of similar levels of educational attainment and educational achievement if educational inputs are to be allocated on the basis of quantitative rather than qualitative assessments. For example, if a textbook for a regular student costs $10 and the textbook for a blind student costs $15 (because the latter has been translated into braille), then it costs fifty percent more dollars to provide a textbook for a blind student than it does to provide a similar textbook for a regular student. Assuming that the expected educational outcomes for all blind students are essentially identical to the expected educational outcomes for regular students, it can be reasonably argued that fifty percent more dollars should be spent on textbooks for blind students (in comparison to an equivalent number of textbooks for regular students) to ensure the equity of educational outcomes. If, on the other hand, the expected educational outcomes for all blind students are not essentially identical to the expected educational outcomes for regular students, then there should be no requirement for similarity in the textbooks purchased for the two and, consequently, no basis for computing the relative amount that should be spent on textbooks for blind students in comparison to an equivalent number of textbooks for regular students.

Disparate levels of educational outcomes do not prevent educational inputs from being allocated in a manner that ensures the equity of educational outcomes; rather, they prevent the allocation of educational inputs from being based on quantitative rather than qualitative assessments. For example, a group of knowledgeable special education teachers, administrators, and educational assistants, may determine, on the basis of their collective experience, that students in full-time self-contained arrangements with severe special needs should be given a student staffing weight of 5.2. The fact that the staffing weight was determined through a qualitative rather than a quantitative assessment does not diminish the validity of the weight; however, it does raise legitimate questions about the reliability of the weight.

Another, perhaps more troublesome, limitation of methodologies attempting to ensure the equity of educational outcomes is their ability to create gross inequities in educational inputs. Given the fact that spending is not limitless, it is reasonable to assume that personnel and material resources may have to be redistributed in order to ensure the equity of educational outcomes and to stay within established spending limits. Unless there is

additional spending to maintain personnel and material resources at existing levels or resources are diverted away from non-instructional programs (e.g., state administration) to instructional programs, certain student populations (and consequently certain schools and departmental school districts) will lose some of these resources to other student populations. These losses would affect other schools and school districts as well.

While the idea of taking from certain student populations to benefit other student populations is likely to create tremendous controversy and raises numerous policy questions of its own, the Bureau notes that several modern institutions are founded on this very idea. For example, the federal Social Security system passes the cost of certain government-funded social programs on to working people who are presumably most able to bear the costs of these programs rather than those persons (e.g. the elderly and disabled) who are most likely to benefit from them. Resources are literally taken from one group of individuals to benefit another group of individuals based on the former group's ability (or the latter group's inability) to pay for the costs of these programs.

The Bureau notes that while not all students are capable of becoming equally productive, self-sufficient, tax-paying members of society, the extent to which each student can become productive, self-sufficient, and taxpaying, reduces that student's consumption of social services and may transform that student from a consumer of social services to a contributing member of society.

While the principle of egalitarianism pervades many aspects of everyday life, this does not guarantee that people will readily accept the idea of taking from certain student populations to benefit other student populations. Taking from one student population to benefit another student population is most likely to upset those persons who believe that social services should be offered through social service agencies rather than the public school system. Although the rationale for providing certain social services through the public school system appears to be educationally sound, a scarcity of resources and gross inequities in educational inputs could add up to parent (and voter) dissatisfaction.

If the Legislature chooses to pursue the idea of allocating educational inputs to ensure the equity of educational outcomes, then the Bureau suggests that the Legislature undertake the following:

(1) Request the DOE to investigate the potential socio-economic impacts of allocating educational inputs to ensure the equity of educational outcomes; and

(2) Request the DOE to investigate the feasibility of using existing qualitative and quantitative data to allocate educational inputs in order to ensure the equity of educational outcomes.

Despite apparent limitations, methodologies attempting to ensure the equity of educational outcomes are likely to proliferate in years to come. According to Allan Odden:[14]

> In fact, the new equity issues of the 1990s are likely to be disparities in student outcomes. To help the policy community deal with this equity issue, education policy analysts will need to find ways to restructure education programs, the uses of fiscal resources and the level of funding to produce less disparity in the level of what students know and are able to do. Put another way, now that the country has shifted its focus from

> equal education opportunity to the percentages of students it wants to perform at basic, adequate and advanced levels on assessments of student achievement, it may be time to refocus education finance on these issues as well. The school finance issues for the 1990s, therefore, may be less the variation in education dollars per student, and more the degree to which level and uses of dollars help or hinder districts and states in meeting new and ambitious national and state education goals.

Assuming that there should be a relationship between the allocation of resources and the equity of educational outcomes, the DOE's current system of allocating resources is not well-suited to ensuring the equity of educational outcomes partly because of the manner in which the resources are appropriated by the Legislature. For example, resources for regular instruction (EDN 105), other regular instruction (EDN 106), special education (EDN 107), and compensatory education (EDN 108), are appropriated by the Legislature as separate amounts, without the benefit of empirical data on the relative amounts of educational inputs needed to ensure the equity of educational outcomes. The design of the DOE's current system of allocating resources does not mean that the DOE cannot ensure the equity of educational outcomes or that educational outcomes are inequitable; rather, it means that the design of the DOE's current system of allocating resources is not well-suited for this purpose.

Because of the ad hoc manner in which the needs of special student populations (e.g., "special education", "homebound and hospitalized", "alienated", "gifted and talented", "poor English speaking", and "low achieving" students) are currently addressed, it is difficult to determine the relative amounts of educational inputs needed to ensure the equity of educational outcomes. For example, the "other regular instruction program" or "EDN 106" consists of approximately fifty different subprograms aimed at supplementing, extending, and enriching the "regular instruction program". A cursory review of the "other regular instruction program" indicates that several of its subprograms serve or could be used to serve the needs of special student populations. Examples of these subprograms include, but are not limited to, "students of limited English proficiency", "bilingual projects", "intensive basic skills programs", "home and hospital instruction", "gifted and talented", "distance learning", "newcomer program", "special needs schools", and "immigrant youth program".

The empirical data that do exist on these educational inputs represent a mixture of what was requested by the DOE, what was budgeted by the Governor, what was appropriated by the Legislature, what was authorized by the Governor, and what was expended by the DOE. Clearly, there is little science to guide those decisions on the relative amounts of educational inputs needed to ensure the equity of educational outcomes. While conventional wisdom holds that special student populations require more educational inputs on a per student basis than regular students, it does not specify the relative amounts of resources needed to ensure the equity of educational outcomes.

The Bureau notes that the DOE's current system of allocating resources places a degree of responsibility for ensuring the equity of educational outcomes on district superintendents. As previously discussed, district superintendents have the authority to withhold funds allocated to their districts to accommodate unique conditions and situations existing at certain schools (e.g., unusually high student turnover rate, extremely large or small school, geographic isolation or population sparsity, etc.).[15] Although the methodology used by district superintendents to allocate resources to accommodate unique conditions and situations existing at certain schools is not specified in *Resource Allocation & Budget*

Execution, Fiscal Year 1990-91, an intuitive, qualitative approach to allocating these resources can be just as effective as a quantifiable one, especially if the latter is not based on any sort of empirical data. Arguably, no allocation formula can totally take the place of such important, yet intangible, human qualities as work experience, good judgment, and intuition.

Assistance for Special Student Populations

According to Deborah Verstegen:[16]

> States generally include factors in their state financing formula to accommodate differences among school districts for special student populations. States report including factors for the following special student programs and services: (1) Special education, (2) Compensatory education, (3) Bilingual education, and (4) Gifted and talented education. Also, states report including a special factor for differences in the cost of educating students at different grade levels.
>
> Essentially the inclusion of these factors in a state financing formula is based on the rationale that additional support is needed and justified for special student populations to accommodate the excess costs of providing supplemental programs and services for these populations. The main approaches used to allocate revenue for special student populations include weighting schemes, excess costs formula, flat grants or a combination of these approaches.
>
> Weighting schemes provide funding based on the ratio of aid needed to provide programs and services for the special population to the cost of the regular program. A weight of 1.0 is assumed to be the cost of providing a regular education program. A weight of 1.5 therefore provides 50% more revenue to supplement the regular program for the special population student or classroom.
>
> * * *
>
> Excess cost factors provide additional funding to special populations by reducing the cost of their educational programs/services by the amount provided for the regular education program. Usually limits on this amount, and/or the allowable amounts or percentages of support are specified. Also, some states provide a uniform amount of funding for special student populations by category. Others employ a combination of these approaches.
>
> Importantly, students may be identified in different ways among states for funding purposes and provisions, which stipulate the use of the aid for the given special population, which also vary. Increasingly, states are recognizing the additional costs needed to educate special student populations, and a number of states

have undertaken to equalize this amount by including it in their basic finance formula.

Of the three main approaches used to allocate resources for special student populations, weighting appears to be the most applicable to Hawaii. Although the DOE already uses weighting to allocate non-personnel resources for regular instruction (EDN 105), school administration (EDN 203), and instructional media (EDN 204), to the seven departmental school districts, the factor that is weighted relates to grade-level enrollment and not the characteristics of special student populations. Specifically, the weighted enrollment allocation used by the DOE to distribute funds for "other current expenses" ("B" funds) and "equipment" ("C" funds) for regular instruction, school administration, and instructional media, are:[17]

K-6 enrollment.....1.0
7-8 enrollment.....1.2
9-12 enrollment.....1.4

The abovementioned enrollment weights mean that twenty percent and forty percent more dollars are allocated per student in grades seven and eight and grades nine to twelve, respectively, in comparison to grades kindergarten to six.

In addition, the DOE utilizes district weights to allocate resources for hourly instructors for the students of limited English proficiency (SLEP) program. The weights, which are applied to the SLEP counts of the Windward, Hawaii, Maui, and Kauai school districts, are made in consideration of these districts smaller SLEP populations. The DOE also utilizes weighted enrollment ratios and weighted stanine (1-3) ratios to allocate resources for after school instruction.[18]

Arguably, the best example of working enrollment allocation weights can be found in the DOE document entitled, *Implementation Procedures for the Allocation of State-Funded Special Education Instructional Positions.*[19] This document describes special education "student staffing weights" according to the extent of special needs (e.g., severe) and educational arrangement (e.g., full-time self-contained). The weights are based on the regular instruction staffing ratio of 26 to 1 and, consequently, can be related to staffing arrangements in the regular instruction program. The student weights are used by the DOE to determine:

(1) The composition of special education classrooms;

(2) The equity of special education classloads;

(3) The assignment of educational assistants; and

(4) Adjustments in staffing necessitated by such factors as excessive age range, remoteness of location, and the medical fragility of students.

The student weights are applied to the allocation of all special educational instruction personnel, which include full-time and part-time special education teachers, educational assistants, and speech pathologists. Although the student weights can be related to staffing arrangements in the regular instruction program, the DOE does not use these weights outside the confines of the special education program.

Although the manner in which the Legislature currently appropriates resources for education programs obviates the need for enrollment allocation weights, this does not preclude the use of enrollment weights in such areas as programming, planning, budgeting, and management. Enrollment weights can be used to determine the relative amounts that should be appropriated for different education programs or to allocate a lump-sum appropriation to different education programs, when valid and reliable enrollment data are available.

Although the Legislature made a separate appropriation in fiscal year 1990-1991 "[t]o provide additional resources to selected schools [i.e., special needs schools] to be used in community-wide collaborations for improving achievement and meeting related, severe and persistent student needs",[20] this single appropriation cannot and should not be relied upon to ensure the equity of educational outcomes among schools with disparate student populations. As previously discussed, resources for education programs are appropriated by the Legislature as separate amounts, without the benefit of empirical data on the relative amount of educational inputs needed to ensure the equity of educational outcomes. Whether the amount appropriated for special needs schools is sufficient to ensure the equity of educational outcomes is uncertain since budgeting is as much a struggle to stay within imposed spending limits as it is to distribute resources to where they are needed most.

Enrollment Allocation Weights and School-by-School Budgeting

Although the application of enrollment allocation weights has heretofore focused on ensuring the equity of educational outcomes, enrollment weights would also seem to provide an objective, quantifiable methodology for developing school budgets. One advantage of using enrollment weights and a formula to develop school budgets is that the Legislature would not have to concern itself with the burdensome task of reviewing and overseeing the execution of more than 200 individual school budgets; such a task could and probably should be left to the DOE.

Although it could be argued reasonably that the task of overseeing the execution of individual school budgets is the responsibility of the DOE rather than the Legislature, the Legislature cannot relinquish entirely its oversight role in this matter to the DOE. For example, school and district enrollment changes may necessitate the transfer of personnel and material resources from one school to another and from one departmental school district to another. Although the DOE would be responsible for making these transfers, the Bureau believes that the Legislature should be responsible for overseeing the propriety of these transfers. How the Legislature would review and oversee the execution of more than 200 individual school budgets is unclear, however. Using the argument that the Legislature has a public obligation to scrutinize the DOE budget, the Bureau notes that it would be inconsistent for the Legislature to review more than 200 individual school budgets but not their execution.

Some important advantages to using enrollment weights and a formula to develop school budgets, as opposed to developing more than 200 individual school budgets, are that an enrollment weights and formula approach to budgeting could:

(1) Increase the impartiality of budgeting and resource allocation;

(2) Focus attention on educational outcomes and ways to ensure the equity of educational outcomes;

(3) Allow the Legislature to concentrate on determining education policy and the education budget;[21] and

(4) Permit the DOE to concentrate on implementing the Legislature's education policies and executing the education budget.

One disadvantage of an enrollment weights and formula approach to budgeting is the fact that no enrollment weight and formula can fully account for truly exceptional circumstances. According to the administrator of the DOE's special education section,[22] a minimum of fifteen percent in additional resources (i.e., beyond that indicated by the DOE's student staffing weights) is necessary to provide appropriately for the needs of students who require more individualized attention than the average special education student. Based on empirical data collected from audits of every special education child in the State, the DOE has determined that this exception factor can be as high as twenty-nine percent depending on the number of unique situations that require supplementary resources. Although the DOE considers a fifteen percent exception factor as the bare minimum needed to account for these exceptional circumstances, the department has reportedly found it difficult to convince legislators and budget analysts of the necessity for the fifteen percent exception factor.

One limitation of an enrollment weights and formula approach to budgeting is that specific legal mandates could prevent personnel and material resources from being decreased in an equitable manner. The DOE's special education program has been the target of several civil suits because of disagreements between parents and the DOE concerning the provision of appropriate services and programs for children in special education.[23] To the extent that the provision of certain special education services and programs are contingent on the availability of personnel and material resources, an enrollment weights and formula approach to budgeting could conceivably cause the DOE to violate certain legal mandates and expose the State to further legal action if those weights and formulas are not set at appropriate levels or fail to anticipate the magnitude of specific problem areas.

An enrollment weights and formula approach to budgeting would appear to be especially compatible with school/community-based management (SCBM) and lump-sum budgeting since it would allocate resources in a way that ensures the equity of educational outcomes and allow individual schools the freedom to use these resources in a manner deemed appropriate by the school's community. According to Allan Odden:[24]

> Taking site decentralization seriously in fiscal terms would require site-based budgeting. Unlike current approaches to budgeting, in which districts make nearly all decisions on how dollars will be allocated and spent [citation deleted], site-based budgeting allocates substantial portions of school district revenues in a lump sum to schools, and professionals at the school level make decisions on how to use those funds [cross reference deleted].

Although an enrollment weights and formula approach to budgeting does not provide strong incentives for schools to develop and implement programs to improve educational performance, it also does not penalize schools that are unable or unwilling--for whatever reason--to develop or implement these programs.

While some states and mainland school districts have begun experimenting with performance-based incentive funding systems, these enticements and rewards could theoretically exacerbate the inequity of educational outcomes among school districts and schools with widely disparate student populations. Although research conducted in South Carolina indicated that performance-based incentives did not flow disproportionately to wealthy districts and, in fact, were concentrated among schools most in need of improvements,[25] it could be argued reasonably that the time and energy expended by a school district or school to qualify for a performance-based incentive is directly related to the size of the reward, and that there is a threshold value below which such a reward becomes nominal in relation to the wealth of the school district or school.

Policy Decisions

The lack of a quantifiable methodology for allocating resources to ensure the equity of educational outcomes is, at the very least, an impediment to holding school principals, district superintendents, the Superintendent of Education, and the Board of Education, accountable for any inequities in educational outcomes. Consequently, the Bureau believes that the following policy-related questions should be addressed by the Legislature:

(1) Should the methodology used by the DOE to allocate resources shift from ensuring the equity of educational inputs toward ensuring the equity of educational outcomes?

(2) Should the methodology used by the DOE to allocate resources be established by the Legislature or the DOE? If "the Legislature", then should the methodology be established by law?

(3) Should resources be appropriated by the Legislature in one lump sum if the methodology used by the DOE to allocate these resources can ensure the equity of educational outcomes?

If the answer to the first of the three foregoing questions is "no", then the following policy-related questions should be addressed by the Legislature:

(1) Should the Legislature continue to permit the Superintendent of Education and district superintendents to withhold resources? If "yes", then;

(2) Should the Legislature limit the percentage of resources that can be withheld by the Superintendent of Education and district superintendents? and

(3) Should the Legislature specify the appropriate use of resources that are withheld by the Superintendent of Education and district superintendents? If "yes", then should these uses be established by law?

If the answer to the first of the three foregoing questions is "no", then the following policy-related questions should be addressed by the Legislature:

(1) Should the Legislature prohibit the Superintendent of Education and district superintendents from withholding resources? If "yes", then should this prohibition be established by law?

(2) Should the Legislature appropriate resources directly to the state office and district offices?

Summary

The controversy over the appropriateness of the current system of resource allocation in the DOE is likely to heighten with the implementation of SCBM. Under SCBM, the Legislature, the Board of Education, and the Governor, will likely be asked by school communities to review their respective roles in matters related to budgeting and resource allocation. The use of enrollment weights and a formula to develop school budgets is one objective, quantifiable way of addressing this controversy and allowing the Legislature, the Board of Education, and the Governor, to exercise their respective policymaking roles in a manner that supports rather than competes with SCBM. Furthermore, an enrollment weights and formula approach to budgeting may eventually do more to ensure the equity of educational outcomes than the confusing plethora of ad hoc programs intended to address the needs of special student populations.

While the idea of ensuring the equity of educational outcomes is appealing, it is also likely to be extremely controversial, not only in concept, but in practice as well. To place the idea of ensuring the equity of educational outcomes into perspective, it is useful to examine the following question: "Should the socio-economic status or, in certain instances, the disability status of a student determine the student's level of educational attainment and educational achievement?" The Bureau believes that the allocation of educational inputs to ensure the equity of educational outcomes, rather than the appropriateness of the current system of resource allocation in the DOE, may be the single most important issue for the Legislature and the DOE to resolve in the 1990's.

ENDNOTES

1. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, RS 90-9212 (November 1990), 401 pp.

2. Memorandum from Charles Toguchi, Superintendent of Education, Hawaii, Department of Education, to Francis McMillen, Chairperson, and Members of the Board of Education, regarding the allocation of resources and budget execution guidelines for fiscal year 1990-1991, August 20, 1990 (in Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1.)

3. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, pp. V-3 to V-5. See the discussion on allocation procedures for school level "B" (other current expenses) and "C" (equipment) funds for the regular instruction program (EDN 105), school administration (EDN 203), and instructional media (EDN 204). The abovementioned pages describe the appropriate use of these funds, state office allocations to district offices, the standard allocation methodology used by the DOE, district office allocations to individual schools, and special allocations for unique conditions and situations.

4. See Consortium for Policy Research in Education (CPRE), "Equality in Education: Progress, Problems and Possibilities", CPRE Policy Briefs, RB-07-6/91 (New Jersey: Eagleton Institute of Politics, Rutgers University, 1991) 11 pp., and Allan Odden, School Finance in the 1990s (California: Consortium for Policy Research in Education, Education Finance and Productivity Center, School of Education, University of Southern California, June 1991), p. 5, for a discussion on the equity of educational inputs and educational outcomes.

5. See Hawaii, Department of Education, "Working Paper #2: A Taxonomy of Indicators for Educational Assessment and Accountability" (August 1989, Revised October 1990)(hereinafter cited as "Working Paper #2"), pp. 5-11, regarding the classification of educational outcomes (outputs) according to their presumed relationships.

6. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, p. V-6.

7. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, pp. V-2 and V-15.

8. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, p. V-5.

9. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, p. V-6.

10. See Hawaii, Department of Education, "Working Paper #2", supra note 5, pp. 11-16, for other examples of educational outcomes (outputs).

11. See Chapter 5, regarding the performance expectations for DOE's foundation program objectives.

12. The draft paper containing the following discussion stated that the contents of the paper were not to be quoted or cited. Consequently, the Bureau omitted all references to the identities of the investigators and the agency sponsoring their research.

13. Supra note 12.

14. Allan Odden, School Finance in the 1990s, supra note 4, p. 5.

15. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, p. V-5.

16. Deborah Verstegen, School Finance at a Glance, SF-90-1 (Colorado: Education Commission of the States, April 1990), p. 46.

17. A weighted enrollment allocation is made by the DOE after each regular school is provided with its basic grant. The basic grant, which is based on grade-level clusters, is essentially a weighted grade-level allocation. The basic allocation and imputed weights are:

Grade-level Cluster	Basic Allocation	Imputed Weight
Elementary K-6	$2,000	1.00
Elementary K-8	$2,500	1.25
Intermediate 7-9	$3,000	1.50
High 9 or 10-12	$4,000	2.00

18. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-1991, supra note 1, pp. V-70 to V-72 and V-139 to V-141.

19. Hawaii, Department of Education, Implementation Procedures for the Allocation of State-Funded Special Education Instructional Positions, RS 88-3288 (February 1988), 14 pp.

20. Hawaii, Department of Education, Resource Allocation & Budget Execution, Fiscal Year 1990-91, supra note 1, p. V-142.

21. To reiterate, the issue of governance is beyond the scope of this study. The Bureau's opinions on resource allocation should not be construed as an expression of approval or disapproval for any particular structure of governance.

22. Interview with Margaret Donovan, Administrator, Department of Education, Special Education Section, Honolulu, Hawaii, October 2, 1991.

23. Donovan, interview, supra note 22.

24. Allan Odden, School Finance in the 1990s, supra note 4, p. 7.

Although the budget for "regular instruction" or EDN 105 is essentially a lump sum budget, the Bureau notes that the budget for "other regular instruction" or "EDN 106" consists of more than fifty subprograms, each with its own appropriation. This confusing plethora of ad hoc subprograms is eventually translated into fifty individual appropriations to the department's seven school districts and 232 regular schools in the State.

25. Allan Odden, School Finance in the 1990s, supra note 4, p. 8.

CHAPTER 7

PROGRAM STRUCTURE

Introduction

The purpose of this chapter is to provide the working bases for an analysis of the current program structure of the DOE. Specifically, this chapter describes the evolution of the program structure for lower education from fiscal year 1965-1966 to fiscal year 1991-1992; identifies some of the important policy issues that should be considered in a discussion of alternatives to the current program structure of the DOE; discusses some of the persistent problems encountered in the development of viable alternatives to the current program structure; and describes two new alternatives to the current program structure.

The Bureau notes that this chapter makes extensive use of terms and concepts that are not in keeping with the Executive Budget Act or part IV of chapter 37, Hawaii Revised Statutes. While this departure from convention provides a new frame of reference for evaluating an old issue, the Bureau recognizes that some confusion may result from this action. To the extent possible, the Bureau attempted to minimize unimportant differences between the terms and concepts used in this chapter and the terms and concepts embodied in the Executive Budget Act.

Evolution of the Program Structure for Education

For the purposes of this analysis:

"Cost center" means a site or program that, in accounting, costs can be related to; in school systems, common cost center designations are individual schools, the central office, the transportation program, the food service program, and so on.[1]

"Expenditure function" means a group of services aimed at accomplishing a single purpose such as administration, instruction, or health services.[2]

"Expenditure object" means a grouping of expenditures according to the type of item or service to be purchased such as personnel services, supplies, or equipment.[3]

"Expenditure programs" means a classification of expenditures by specific type of educational program for which performance objectives can be described such as reading, mathematics, or drug education.[4]

"Function-object budget" means a budget format used to identify costs under a number of broadly defined function and object categories (such as administration, instruction, debt service, and plant maintenance); emphasis is upon objects of expenditure rather than programs of the school.[5]

"Performance budget" means a budget based primarily on measurable performance objectives of programs and services.[6]

"PPBES/PPBS" means the Planning, Programming, Budgeting Evaluation System/Planning, Programming, Budgeting System.[7]

"Program budget" means a budget in which expenditures primarily are based on program; a program budget is considered to be a transitional format between a function-object budget and a performance budget.[8]

"Program structure" means a display of programs that are grouped in accordance with the objectives to be achieved or the functions to be performed.[9]

"School site budgeting" means budget development based on school sites (and cost centers); intended to encourage the diversity of expenditure needed to meet the needs of students at individual schools.[10]

"Translation" means the expression of the relationship between two structures or formats (for example, between the program structure and the appropriation-budget structure).

"Zero-based budgeting" means a budgeting system in which requests for funds must be justified without reference to past practice (see also PPBES/PPBS).[11]

Arguably, the history of the DOE's program structure from fiscal year 1965-1966 to fiscal year 1991-1992 can be divided into seven periods.[12] The seven periods are:

Period	Fiscal Year
First	1965-1966
Second	1966-1967 to 1969-1970
Third	1970-1971
Fourth	1971-1972 to 1974-1975
Fifth	1975-1976 to 1976-1977
Sixth	1977-1978 to 1978-1979
Seventh	1979-1980 to 1991-1992

First Period. The first period, or fiscal year 1965-1966, is distinguished by a program structure comprised of expenditure functions and expenditure programs. Consequently, the DOE received its annual operating budget from the Legislature according to groups of related services (e.g., state administration, regular instruction, guidance, etc.) and educational programs (e.g., health education, home economics, industrial arts education, etc.).

Second Period. The second period, which includes fiscal years 1966-1967 to 1969-1970, is distinguished by lump-sum budgeting. Consequently, the DOE received its annual operating budget from the Legislature as a single appropriation. Relevant changes in the DOE's program structure between the first period and the second period included the abolition of all previously existing expenditure functions and expenditure programs and the creation of one cost center (i.e., the DOE). There were no relevant changes in the DOE's program structure during the second period.

Third Period. The third period, or fiscal year 1970-1971, is distinguished by a program structure comprised largely of expenditure functions. Consequently, the DOE received a large part of its annual operating budget from the Legislature according to groups of related services. Although the expenditure functions that comprise the program structure of the third period are a throwback to the expenditure functions that comprise the program structure of the first period, there were substantive differences between the two. Relevant changes in the DOE's program structure between the second period and the third period included:

(1) The abolition of the previously established cost center;

(2) The reinstatement of the previously abolished regular instruction, special education, and state administration expenditure functions; and

(3) The creation of an other regular instruction expenditure function.

Fourth Period. The fourth period, which includes fiscal years 1971-1972 to 1974-1975, is distinguished by a program structure comprised largely of expenditure programs. Consequently, the DOE received a large part of its annual operating budget from the Legislature according to educational programs. Relevant changes in the DOE's program structure between the third period and the fourth period included the abolition of the previously existing "regular instruction" and "other regular instruction" expenditure functions and the creation of expenditure programs for mathematics, language arts, science, etc. Relevant changes in the DOE's program structure during the fourth period were limited to the abolition of the special education expenditure function in fiscal years 1973-1974 and 1974-1975.

Fifth Period. The fifth period, which includes fiscal years 1975-1976 to 1976-1977, is distinguished by a program structure comprised of expenditure functions. Consequently, the DOE received its annual operating budget from the Legislature according to groups of related services. Relevant changes in the DOE's program structure between the fourth period and the fifth period included:

(1) The abolition of previously existing expenditure programs (i.e., mathematics, language arts, science, etc.) and the creation of three expenditure functions: elementary; intermediate; and high;

(2) The abolition of the previously existing state administration expenditure function and the creation of four expenditure functions: executive direction; planning, analysis, and budgeting; general administrative services; and business and financial operations; and

(3) The creation of a compensatory education expenditure function.

Sixth Period. The sixth period, which includes fiscal years 1977-1978 to 1978-1979, is distinguished by a program structure comprised of cost centers (i.e., individual schools), expenditure functions, and expenditure programs. Consequently, the DOE received its annual operating budget from the Legislature according to 223 individual schools, groups of related services, and educational programs. Relevant changes in the DOE's program structure between the fifth period and the sixth period included:

(1) The abolition of the previously existing elementary, intermediate, and high school expenditure functions and the creation of 223 cost centers and eleven expenditure programs (e.g., environmental education, Hawaii English Program, driver education, etc.);[13] and

(2) The abolition of the previously existing executive direction; planning, analysis, and budgeting; general administrative services; and business and financial operations expenditure functions and the reinstatement of the previously abolished state administration expenditure function.

Seventh Period. The seventh period, which includes fiscal years 1979-1980 to 1991-1992, is distinguished by a program structure comprised of expenditure functions.

Consequently, the DOE received its annual operating budget from the Legislature according to groups of related services. Relevant changes in the DOE's program structure between the sixth period and the seventh period included the abolition of the previously existing cost centers and expenditure programs (e.g., environmental education, Hawaii English Program, driver education, etc.) and the reinstatement of the previously abolished regular instruction and other regular instruction expenditure functions.[14] Relevant changes in the DOE's program structure during the seventh period were limited to the addition of the After School A+ Program in fiscal year 1990-1991.

Policy Issues

Any discussion concerning alternatives to the current program structure of the DOE must be based on a notion of what the program structure should (or should not) accomplish. The Bureau believes that the following propositions identify some of the important policy issues that should be considered in a discussion of alternatives to the current program structure of the DOE. As previously noted in Chapter 6, the issue of governance is beyond the scope of this study. Findings and conclusions concerning the program structure of the DOE should not be construed as an expression of approval or disapproval for any particular structure of governance.

(1) The DOE's program structure should be dictated by the direction of school reform, and conversely, the direction of school reform should not be dictated by the DOE's program structure. The manner in which personnel and material resources are appropriated by the Legislature and allocated by the DOE could have a stifling effect on the direction of school reform. To the extent that the direction of school reform does not unduly compromise the integrity of existing budgetary controls, the DOE's program structure should be sufficiently flexible to enable school reform to take hold.

For example, if the DOE's program structure for regular instruction were to be comprised of expenditure programs (e.g., mathematics, language arts, science, etc.), a school might feel compelled to adopt a similar program structure for regular instruction even though the characteristics of the school's staff, such as subject-area strengths, weaknesses, and interests, would indicate that a program structure comprised of expenditure functions organized by grade levels (e.g., grade 1 to grade 6 regular instruction) might be more appropriate. Trying to relate these two disparate program structures would require the preparation of a translation and the expenditure of valuable personnel and material resources.

(2) The DOE's program structure should reflect how educational services are organized and delivered by schools, district offices, and the state office. With this program structure, legislative appropriations are also brought into alignment with how educational services are organized and delivered. Assuming that there is a direct link between how educational services are organized and delivered, and how personnel and material resources are expended, this program structure would link the appropriation of resources by the Legislature to the expenditure of resources by schools, school districts, and the state office. Through the DOE's program structure, the Legislature could determine how schools, school districts, and the state office actually expended the resources appropriated by the Legislature.

(3) The DOE's program structure should reflect state education goals. According to Allan Odden:[15]

> The first step in school finance for the 1990s will be to link a school finance structure to substantive education objectives, specifically to programs needed to accomplish national, and what increasingly will become, state student performance goals. While state goals may [sic] ultimately different from national goals, all states are moving to: 1) increase the high school graduation rate to at least 90 percent; 2) have all students demonstrate competency in challenging subject matter of [sic] reading, writing, science, mathematics and history; and 3) substantially improve student proficiency in mathematics and science [citation deleted].
>
> If these goals are taken seriously, states will need to provide a base school finance system that will allow all local school districts to meet these performance goals. Since these goals include teaching all students how to think, solve problems and communicate at levels much higher than all but a very few districts accomplish today, the cost of the base program is likely to be high. This education agenda is more grandiose than all but a few districts have tried historically.
>
> * * *
>
> In short, designing school finance formulas in the 1990s will entail a close working relationship between program analysts and finance analysts, with program analysts identifying the strategies that work for producing high levels of student achievement and finance analysts costing out those strategies and determining the dollar level for the state's base funding program.
>
> The new system, then, would link education and fiscal systems. It would be an education goals, student achievement driven system with a finance structure designed to finance the programs and strategies required to meet the goals.

Linking the DOE's program structure to state education goals could provide the means for relating the appropriation, allocation, and expenditure of resources to state education goals, as advocated by Odden. Whether the DOE can develop valid and reliable indicators to measure progress or success in meeting some of these goals remains to be seen since some goals may not be measurable.

(4) The DOE's program structure should consider allocating educational inputs in a manner that ensures the equity of educational outcomes for disparate student

populations and for schools with disparate student populations. As pointed out by Allan Odden:[16]

> In fact, the new equity issues of the 1990s are likely to be disparities in student outcomes. To help the policy community deal with this equity issue, education policy analysts will need to find ways to restructure education programs, the uses of fiscal resources and the level of funding to produce less disparity in the level of what students know and are able to do. Put another way, now that the country has shifted its focus from equal education opportunity to the percentages of students it wants to perform at basic, adequate and advanced levels on assessments of student achievement, it may be time to refocus education finance on these issues as well. The school finance issues for the 1990s, therefore, may be less the variation in education dollars per student, and more the degree to which level and uses of dollars help or hinder districts and states in meeting new and ambitious national and state education goals.

Although the Bureau had identified this issue as one of the policy questions that may need to be addressed by the Legislature, this discussion is based on the belief that allocating educational inputs for the purpose of ensuring the equity of educational outcomes is desirable.

Limitations

Some of the most persistent problems encountered in the development of viable alternatives to the current program structure of the DOE stem from the program structure for regular instruction in the schools. As previously discussed, the DOE's program structure for regular education was comprised of elementary, intermediate, and high school expenditure functions at one time, and mathematics, language arts, science, etc., expenditure programs at another. The problem with these program structures stemmed from the fact that schools and teachers were not organized strictly according to expenditure functions (i.e., elementary, intermediate, and high school) or expenditure programs (i.e., mathematics, language arts, science, etc.).

Although elementary, intermediate, and high schools once had spanned the same grades (K-6, 7-9, 10-12), that is no longer true. For example, some elementary schools may be comprised of grades kindergarten to six, while others are grades kindergarten to eight. Likewise, high schools may be comprised of grades nine to twelve or grades ten to twelve. Adding to the complexity of the situation are intermediate schools, which are comprised of grades seven to nine, and comprehensive schools, which are comprised of grades kindergarten to twelve.

The separation of teachers according to expenditure programs, such as language arts, mathematics, and science, was not consistent with the way in which teachers in all grade levels actually provided instruction to their students. For example, although most intermediate and high school teachers could be grouped according to expenditure programs,

most elementary school teachers could not. The primary difference between the two was that elementary school instruction was treated as an interdisciplinary activity (i.e., one teacher providing instruction in several different disciplines, such as social studies, science, health education, art, etc.) rather than a specialized activity, as is the case in intermediate and high schools. Although the program structure for regular instruction in elementary, intermediate, and high schools has undergone relatively little change until now, school/community-based management (SCBM) and a new pedagogy[17] may change all of this as schools and communities begin to experiment with different ways of utilizing the unique skills, knowledge, and abilities of their staff to meet the needs of their students.

While there have been suggestions in the past that the program structure for regular instruction be separated according to interdisciplinary instruction (i.e., elementary) and specialized instruction (i.e., intermediate and high school mathematics, language arts, science, etc.), the Bureau can find no rational basis for this separation. The fact that regular instruction in intermediate and high schools is amenable to detailed scrutiny, which is made possible by the specialization of instruction, does not appear to justify the adoption of a program structure that dissects one group of expenditures into many pieces while leaving the other whole.

By not adopting a program structure for regular instruction that reflects how schools are organized, provide services, and expend resources:

(1) A large number of unilateral decisions regarding the allocation of resources need to be made by the DOE unless the Legislature provides a translation linking the appropriation-budget structure to the DOE program structure;

(2) There would be no effective way to verify that teachers are expending these resources in the manner intended by the Legislature. Various formulas could be used to apportion personnel (e.g., teaching time) and material resources (e.g., classroom supplies) and to link the appropriation-budget structure to the program structure, but for the Legislature or the DOE to verify that teachers are adhering to these formulas would require teachers to maintain detailed records of their daily activities, including the use of classroom supplies; and

(3) Depending on the amount of recordkeeping and reporting requirements imposed on teachers, the traditional DOE program structure for regular instruction could eventually thwart the intent of SCBM. This, of course, is based on the assumption that teachers would rather acquiesce to the traditional program structure than comply with burdensome recordkeeping and reporting requirements associated with any new structure.

Alternatives

As previously discussed in Chapter 6:[18]

> Taking site decentralization seriously in fiscal terms would require site-based budgeting. Unlike current approaches to budgeting, in which districts make nearly all decisions on how dollars will be allocated and spent [citation deleted], site-based budgeting allocates substantial portions of school district revenues in a lump sum to schools, and professionals at

> the school level make decisions on how to use those funds [citation deleted].
>
> Explaning site-decentralization further, Allan Odden has suggested that:[19]
>
> ...States could stipulate that a fixed percent of base funding be allocated directly to schools as a lump sum. States could require districts to allocate a fixed percent--or all--of instructional expenditures to schools. In other words, states could become very aggressive players in stimulating serious site-based management, by "forcing" dollars to flow directly to schools....[D]istrict and state approaches to site-based management in the 1990s entail considerable devolution of fiscal decisionmaking to schools, contrary to past site-based management initiatives [citation deleted].

School-by-School Budgeting. As previously discussed in Chapter 6, one alternative to the current program structure of the DOE is to use enrollment allocation weights and a formula to develop school budgets. Because SCBM has yet to be implemented in all schools, universal lump-sum budgeting would not appear to be warranted at this time. While lump-sum budgeting is warranted for SCBM schools, it is not warranted for non-SCBM schools.

As the DOE moves toward 100 percent participation in SCBM,[20] enrollment weights and a formula could be used by the Legislature to determine the respective amounts that should be appropriated for regular instruction (EDN 105), other regular instruction (EDN 106), special education (EDN 107), and compensatory education (EDN 108). Personnel and material resources for these four expenditure functions, minus personnel and material resources for noninstructional classroom services, could then be allocated to the schools based on enrollment. The Legislature could permit SCBM schools to commingle resources from these four expenditure functions with one another and with resources from other expenditure functions, such as school administration (EDN 203), instructional media (school library only)(EDN 204), counseling (EDN 206), and student activities (EDN 207). Conversely, the Legislature could require the DOE to allocate, and non-SCBM schools to expend, these resources in accordance with tneir respective expenditure functions, i.e., not allow commingling.

One of the problems with this particular approach to developing school budgets is that personnel and material resources for noninstructional classroom services (e.g., clerical, custodial, and diagnostic services) and district-wide support services (e.g., audiovisual centers) would have to be separated from certain expenditure functions (e.g., special education and instructional media, respectively) since these resources would not be allocated to individual schools. This, most likely, would require changes to the current program structure of the DOE.

Translating. Another alternative is to leave the current program structure of the DOE "as is" and to direct the allocation and expenditure of personnel and material resources through a translation. If the Legislature chooses to utilize a translation to provide more explicit instructions to the DOE on how specific resources should be allocated and expended, then the following should be considered:

(1) The translation should not contain so many expenditure categories that it weakens the program structure of the DOE. Changes to the current program

structure should be made "up front" and not through the "back door" by way of the translation;

(2) The translation should focus only on those areas of primary concern to the Legislature, e.g., the amounts expended for classroom instruction versus noninstructional classroom services. The purpose of the translation should be to provide explicit instructions to the DOE on how specific resources should be expended;

(3) Although the translation should be treated as a supplemental display to the current program structure of the DOE, the translation should be established by law; and

(4) The translation should be used by the DOE to prepare its annual operating budget request in line with PPB, the State's planning, programming, and budgeting system. The DOE should also use the translation to account for all expenditures and variances between budgeted and actual expenditures.

The following is just one of many versions of a translation that can be used by the Legislature to provide explicit instructions to the DOE on how specific resources should be expended. Expenditure categories for the translation are denoted by triple asterisks (***) and **bold** typeface. For the purposes of facilitating this discussion, expenditure functions that comprise the current program structure of the DOE have been placed in specific expenditure categories. The placement of these expenditure functions should not be construed as being a finding or recommendation by the Bureau, however. Adult education (EDN 406), After school A+ (EDN 405), and Public libraries (EDN 407) were omitted from this discussion.

TRANSLATION

State and district-wide support to schools

State and district-wide administrative support (***)

State administration (EDN 303)
District administration (EDN 304)
Instructional development (general direction only)(EDN 205)
School food services (state administrative services only)(EDN 305)
Physical plant operations and maintenance (state administrative services only)(EDN 307)

State and district-wide support services (***)

Instructional development (except general direction)(EDN 205)
School food services (except state administrative services)(EDN 305)
Physical plant operations and maintenance (except state administrative services)(EDN 307)
Safety and security services (EDN 306)
Educational assessment and prescriptive services (EDN 208)
Instructional media (audiovisual centers only)(EDN 204)
Noninstructional classroom services
Regular instruction (EDN 105)
Other regular instruction (EDN 106)

Special education (EDN 107)
Compensatory education (EDN 108)

Direct support to schools

Classroom instruction (***)

Regular instruction (EDN 105)
Other regular instruction (EDN 106)
Special education (EDN 107)
Compensatory education (EDN 108)

Student services (***)

Instructional media (school libraries only)(EDN 204)
Counseling (EDN 206)
Student activities (EDN 207)

School administration (EDN 203)

The abovementioned translation is comprised of five expenditure categories and places an emphasis on state and district-wide administrative support, state and district-wide support services, classroom instruction, student services, and school administration.

Summary

The program structure for lower education has been the subject of controversy for more than twenty-five years. Despite numerous changes to the program structure of the DOE, no one program structure has proven to be entirely satisfactory to the DOE and the Legislature for any great length of time. Even the current program structure of the DOE, which has remained essentially unchanged (but not unchallenged) for the last thirteen years, is being questioned in view of the school reform movement. Proposed alternatives to the current program structure have their own inherent strengths and limitations, and no one program structure is likely to prove satisfactory to the DOE and the Legislature in every respect.

ENDNOTES

1. Ivan Wagner and Sam Sniderman, Budgeting School Dollars: A Guide to Spending and Saving, Revised ed. (Virginia: National School Boards Association, 1987)(hereinafter cited as "Budgeting School Dollars"), p. 262.

2. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 262.

3. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 262.

4. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 262.

5. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 263.

6. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 263.

7. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 263.

8. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 264.

9. Section 37-62, Hawaii Revised Statutes.

10. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 264.

11. Ivan Wagner and Sam Sniderman, "Budgeting School Dollars", supra note 1, p. 264.

12. The data for this analysis were extracted from:

(1) Act 296, Session Laws of Hawaii 1991;
(2) Act 299, Session Laws of Hawaii 1990;
(3) Act 316, Session Laws of Hawaii 1989;
(4) Act 390, Session Laws of Hawaii 1988;
(5) Act 216, Session Laws of Hawaii 1987;
(6) Act 345, Session Laws of Hawaii 1986;
(7) Act 300, Session Laws of Hawaii 1985;
(8) Act 285, Session Laws of Hawaii 1984;
(9) Act 301, Session Laws of Hawaii 1983;
(10) Act 264, Session Laws of Hawaii 1982;
(11) Act 1, First Special Session Laws of Hawaii 1981;
(12) Act 300, Session Laws of Hawaii 1980;
(13) Act 214, Session Laws of Hawaii 1979;
(14) Act 243, Session Laws of Hawaii 1978;
(15) Act 10, First Special Session Laws of Hawaii 1977;
(16) Act 226, Session Laws of Hawaii 1976;
(17) Act 195, Session Laws of Hawaii 1975;
(18) Act 218, Session Laws of Hawaii 1974;
(19) Act 218, Session Laws of Hawaii 1973;
(20) Act 202, Session Laws of Hawaii 1972;
(21) Act 68, Session Laws of Hawaii 1971;
(22) Act 175, Session Laws of Hawaii 1970;
(23) Act 154, Session Laws of Hawaii 1969;
(24) Act 74, Session Laws of Hawaii 1968;
(25) Act 54, Session Laws of Hawaii 1967;
(26) Act 8, Session Laws of Hawaii 1966; and
(27) Act 99, Session Laws of Hawaii 1965.

13. Although the regular instruction and other regular instruction expenditure functions were never actually abolished, the creation of 223 cost centers and eleven expenditure programs essentially abolished the two expenditure functions.

14. Supra note 13.

15. Allan Odden, School Finance in the 1990s (California: Consortium for Policy Research in Education, Education Finance and Productivity Center, School of Education, University of Southern California, June 1991), p. 6.

16. Allan Odden, School Finance in the 1990s, supra note 15, p. 5.

17. "Pedagogy" means the art, science, or profession of teaching.

18. Allan Odden, School Finance in the 1990s, supra note 15, p. 7.

19. Allan Odden, School Finance in the 1990s, supra note 15, p. 7.

20. Given the basic premise of school/community-based management (SCBM), it seems inconsistent to maintain that there will be 100 percent participation in SCBM. Certainly, some schools and communities would not want to participate in SCBM; yet, the assumption is that all will.

Appendix A

Expenditures For Equipment and Motor Vehicles in Current Dollars*

Appropriation Code	Description	Fiscal Year 1988-1989	Fiscal Year 1989-1990
	ADMINISTRATION		
G025E	Instructional development	195,520	305,811
G028E	Psychological and school social work	30,479	43,083
G033E	State administration	1,074,125	3,555,916
G034E	District administration	73,637	74,643
G301E	Classification and compensation appeals board	638	--
S904E	National origin desegrigation	37	171
S925E	Civil rights projects-sex desegrigation	13,484	10,856
S926E	Inservice training of personnel in special education, Title VI	467	2,299
S927E	Bilingual education-technical assistance, Title VII	--	2,530
S952E	Dissemination system	--	11,979
S971E	ECIA, Chapter 2-ID	9,717	12,273
S972E	ECIA, Chapter 2-SA	22,779	16,171
S975E	ECIA, Chapter 1 - Administration	1,143	24,792
T913E	Foundation and other grants	11,678	22,837
T929E	Donations and gifts-district offices	3,484	--
	Total Administration	1,437,188	4,083,361

*All figures are rounded to the nearest dollar.

Appropriation Code	Description	Fiscal Year 1988-1989	1989-1990
	INSTRUCTION		
G015E	Regular instruction program	4,844,887	6,949,905
G016E	Other regular instruction programs	1,509,210	5,518,048
G017E	Exceptional child program	363,041	458,959
G018E	Compensatory education	68,850	154,814
G023E	School administration	239,670	267,652
G024E	Instructional media	1,256,177	1,391,351
G027E	Student activities	13,347	91,207
G303E	Pay adjustment for eligible substitute and part-time temporary teachers	--	239,022
G304E	Implement pilot afterschool (A+) program	--	40,458
S202E	Planning and development of dependent care	8,424	6,221
S211E	Educational personnel training program--drug-free schools and communities	--	397
S213E	Drug-free schools and communities (other regular instruction)	64,913	85,124
S228E	Preschool incentive grant, Section 619, Part B	19,708	22,285
S274E	State/local aids-school health education	10,693	1,775
S291E	Even start project	--	7,781
S292E	Bilingual education-Project Akamai	--	3,537
S323E	Summer school revolving fund	2,326	3,238
S325E	Use of school facilities fund	296,260	303,056
S330E	School special fees revolving account	130,107	151,978
S350E	Driver education fund-underwriters fees	12,077	96,929
S902E	Bilingual/bicultural, Title VII-counseling	199	625
S903E	Bilingual/bicultural, Title VII-parent	--	326
S906E	Bilingual education-Project BIBS	--	957
S933E	ECIA, Chapter 1, local educational agencies (compensatory education)	299,579	165,089
S939E	Education of handicapped children-state schools	18,836	43,409
S941E	Neglected and delinquent, ESEA, Title I	4,169	362
S942E	Follow through technical assistance	4,028	4,707
S943E	Education of handicapped, Title VI, Part B	568,120	261,155
S951E	Vocational education programs	738,388	733,732
S957E	Emergency immigrant education assistance program, Title V	6,641	4,040
S959E	Indochinese refugee child assistance program	--	2,268

Appropriation Code	Description	Fiscal Year 1988-1989	1989-1990
S961E	Vocational education administration	573	13,926
S9065E	Education of handicapped-administration, Title VI, Part B	--	4,255
S970E	ECIA, Chapter 2-ORI	558,544	667,519
S271E	Bilingual-Project BIBS	224	--
S905E	Bilingual/bicultural, Title VII-Project Holopono	1,346	--
S919E	ECIA, Chapter 1, program grantback	12,217	--
S922E	Vocational education grantback award	19,912	--
T902E	Donations-education	4,097	22,877
T915E	State schools athletic fund	49,328	35,242
T923E	JTPA work Hawaii job training program	5,924	5,770
T930E	Hana Kupono Project-Alu Like, Inc.	92,034	24,588
T933E	Carreer education demonstration project	10,407	1,773
T934E	Native Hawaiian drug-free schools and communities	--	250
T936E	Office of Hawaiian Affairs-grants	291	600
T938E	Alu Like, Inc., grants	--	11,870
T939E	Woodrow Wilson Foundation	--	1,657
T935E	Tutorial program-West Oahu employment corporation	95	--
---	Textbooks	<2,441,901>	<3,665,149>
---	Library Books	<1,173,048>	<1,530,500>
	Total Instruction	7,619,693	12,605,085

Appropriation Code	Description	Fiscal Year 1988-1989	Fiscal Year 1989-1990
	SUPPORT SERVICES		
G026E	Counseling	2,359	12,127
G036E	Safety and security services	8,465	31,179
G037E	Physical plant operations and maintenance	<278,488>	<355,897>
---	Maintenance of school plants (AGS)	<1,708,259>	<2,344,047>
---	Health services (Department of Health	68,803	84,102
---	Student transportation (AGS)*	<51,532>	<23,448>
	Total Support Services	79,627	127,408

Appropriation Code	Description	Expenditures For Equipment and Motor Vehicles Fiscal Year 1988-1989	Expenditures For Equipment and Motor Vehicles Fiscal Year 1989-1990
	FOOD SERVICES		
G035E	School food services	--	535,796
S248E	School food services-federal cash subsidies	163,567	964,441
S953E	School lunch administrative expense fund-CNP	4,816	12,989
	Total Food Services	168,383	1,513,226

Appendix B

Expenditures For Government Contribution to Social Security, Retirement Funds, Insurance, and Medical Plan in Current Dollars*

Appropriation Code	Description	Fiscal Year 1988-1989	Fiscal Year 1989-1990
	ADMINISTRATION		
G025E	Instructional development	738,088	694,145
G028E	Psychological and school social work	1,431,409	1,319,596
G033E	State administration	1,325,467	1,297,659
G034E	District administration	1,403,954	1,322,645
G301E	Classification and compensation appeals board	28	2
T903E	Temporary deposit	145	--
	Total Administration	4,899,091	4,634,047
	INSTRUCTION		
G015E	Regular instruction program	32,196,583	29,109,114
G016E	Other regular instruction programs	5,082,017	5,080,045
G017E	Exceptional child program	4,842,502	4,576,955
G018E	Compensatory education	920,956	901,456
G023E	School administration	4,220,641	3,978,909
G024E	Instructional media	1,338,226	1,195,907
G027E	Student activities	412,294	377,224
S301E	Lahainaluna boarding department	49	21
S323E	Summer school revolving fund	6,908	5,344
S325E	Use of school facilities fund	48	22
S350E	Driver education fund-underwriters fees	1,064	875
S907E	Federal impact aid-regular instruction program	<2,554,873>	<2,325,745>
S911E	Federal impact aid-special education program	<282,817>	<554,257>
	Total Instruction	46,183,598	42,345,870

Appropriation Code	Description	Fiscal Year 1988-1989	1989-1990
	SUPPORT SERVICES		
G026E	Counseling	1,921,221	1,765,432
G036E	Safety and security services	363,978	342,662
G037E	Physical plant operations and maintenance	3,155,793	3,049,928
	Total Support Services	5,440,992	5,158,022
	FOOD SERVICES		
G035E	School food services	2,695,770	2,493,124
S304E	School food services	648	618
S248E	School food services-federal cash subsidies (adult supervision)	<4,713>	<13,050>
S248E	School food services-federal cash subsidies (means of financing)	<634,836>	<332,679>
S304E	School food services-substitute cost	<10,750>	<10,258>
	Total Food Services	2,046,119	2,137,755

* All figures are rounded to the nearest dollar.

Appendix C

Samuel B K Chang
Director

LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol
Honolulu, Hawaii 96813
Phone (808) 548-6237

November 15, 1991

4631A

Mr. Charles Toguchi
Superintendent
Department of Education
1390 Miller Street, Room 307
Honolulu, Hawaii 96813

Dear Mr. Toguchi:

Enclosed for your review are chapters 2 through 7 from a confidential and preliminary draft of a report on public school funding prepared by this office at the request of the Legislature. Since the draft is subject to change, we ask that you not circulate it until a final report is released. Please feel free to make any comments, cite any errors, state any objections, or suggest any revisions to these confidential drafts. Your comments and suggestions are important to us and revisions will be made if deemed appropriate.

Please mark your comments directly upon the enclosed draft and return it to us by December 1, 1991. It is not necessary to submit a formal reply.

If you have any questions or concerns regarding the drafts of these chapters, please feel free to call Keith Fukumoto at 587-0661.

Sincerely,

Samuel B. K. Chang
Director

SBKC:ay
Enc.

JOHN WAIHEE
GOVERNOR

CHARLES T. TOGUCHI
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

December 27, 1991

Mr. Samuel B.K. Chang, Director
Legislative Reference Bureau
State Capitol
Honolulu, Hawaii 96813

Dear Mr. Chang:

Thank you for the opportunity to review and comment on the preliminary draft of Chapters 2 through 7 of a report on public school funding prepared by your office at the request of the State Legislature.

Enclosed are the Department's response and comments to the draft Chapters. We appreciate your patience for our delay of transmitting our response.

If you have any questions regarding our response, please contact Stafford Nagatani at 586-3588.

Sincerely,

Charles T. Toguchi
Superintendent

CTT:STN:nm

JOHN WAIHEE
GOVERNOR

CHARLES T. TOGUCHI
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

December 24, 1991

MEMO TO: Stafford T. Nagatani
Administrative Assistant
Office of the Superintendent

F R O M: Kellet I. Min, Director
Planning and Evaluation Branch

SUBJECT: Response to Legislative Reference Bureau Draft Report

Chapter 2 Measures, Methodologies, and Data: Their Design and Limitations

Clearly, defining, collecting, and reporting financial data has a long way to go. Yet, it is important to realize that most, if not all, applications of data suffer criticisms. In short, we must use available data and improve it as we go along; we do not have sufficient time to wait for perfect data.

The Chapter cites two statements as examples showing that "care should be exercised when using these data to construct measures of funding support for education": 1) "NCES (National Center for Educational Statistics) data is (sic) accurate..." and, 2) "...the federal government's attempt to compile state-by-state comparisons on educational revenues and expenditures remain questionable for at least eight states" (page 9). We submit these statements are used out of context and do not contribute to improving the situation. The intent of the first statement is to show that National Center for Education Statistics are the most accurate data at this juncture; and the intent of the second statement is to recognize that improvements still must be made. In short, we recommend that statements like these be deleted.

We submit that it is useful to examine Hawaii's data against itself, as well as those of other states. In examining it against other states, it is helpful to look at 1) Context Indicators (such as demographic data and the ability of a State to expend money for education), 2) Input Indicators (such as student-teacher ratio and the percent of expenditures per pupil spent on overhead costs), and 3) Output Indicators (such as student performance on achievement tests and graduation rates). It is ironic that studies such as this Report, which expend considerable effort discrediting data, often neither make recommendations to expend funds to correct data problems nor make recommendations to obtain useful data, especially in regard to permitting inter-state comparisons and local decision-making.

Chapter 3 Inflation and Current Operations Expenditures

The "Discussion" (page 23) states that whether a percent increase or decrease in per pupil current operations, even after adjustment for inflation, is "substantive" or "nominal" depends on three factors: 1) Legislative goals and costs, 2) Legislative timeframe, and 3) Legislative ways and means for achieving goals and objectives. However, the Report does not recognize that the Legislature often does not sufficiently specify these factors; and in many instances legislators could not do so because the necessary data are not retrievable and because there are precious few demonstrated causal relationships. Moreover, the Legislature ought to take a broader view. "Substantiveness" should also be dependent upon need (how many and to what degree), impact (how many are affected), effectiveness (likelihood of success), and comparisons (with other states and countries).

Chapter 4 Expenditures for Education: An Interstate Perspective

This Chapter is difficult to understand and analyze without rechecking the sources, definitions and methodologies used to write the Chapter. Tables 3-7

reconfigures data that are summarized by the National Center for Educational Statistics and reconfiguring summary data may magnify weaknesses. For example, Table 7 (page 38) arrays data for "Direct Support." Direct Support funds are made by a State for the benefit of local education agencies. In other words, it is a means of financing total expenditures, not a kind of expenditure as is "Instruction." In short, because Hawaii's State and Local Education Agencies are the same, the comparisons are not applicable for Hawaii.

Another major concern with the data presented in this Chapter is the definition of "Administrative Staff" (pages 40, 49, 52). We are not sure what is included in State Education Agency administrative staff. Other states do not combine State Education Agency and Local Education Agency expenditures as does Hawaii. If the State Education Agency administrative staff were removed from Hawaii's expenditures, the per pupil cost would be less. In other words, Hawaii's Sate Department of Education is charged with both the operational responsibilities of Local Education Agencies and the regulatory functions of State Education Agencies. Also, in Hawaii, far more time and effort are required to respond to Legislative requests than almost all other states. In short, to be meaningful, comparisons about personnel need to compare similar organizations and functions.

Chapter 5 Accountability

The chapter seems to begin by redefining the intent of the Act. More specifically, it redefines suitability (appropriateness) to the "nature of an audit" (page 60). We submit "to study the extent to which the Department is able to explain the expenditures of public funds for the purposes for which they were appropriated" is a more appropriate interpretation of the Act. The Chapter also defines accountability in terms of a contract (page 60). The problem is that while contracts are specific, charges to the Department of Education are often general, subject to different interpretations, and fraught with data problems. In addition to data problems, such as measuring effective outcomes, inputs and context variables are difficult to quantify. Also, unanimous agreements of goals, as well as causes and effects are often absent.

The Chapter assumes that the Foundation Program Objectives, Performance Expectations, and Competency-based Measures guide accountability efforts. It should be noted that a reexamination of curriculum and student assessment is underway.

The Chapter states that "the expectations of the DOE appear to be based largely on the implementation of School/Community-Based Management (SCBM)" (page 66). This statement is not true. Development of the Education Assessment and Accountability System began in 1988 before the 1989 Legislature mandated SCBM. Accountability is an effort that "ought" to be undertaken because professionalism includes accounting for actions. Indeed, an examination of the purposes, goals, and objectives of the Educational Assessment and Accountability System (65) and accountability issues (page 65-66) reveal a close correspondence. The issue that is not addressed is cost-effectiveness (page 65). Our experience is that cost-effectiveness studies are best applied in examining alternative ways of achieving specific objectives. In other terms, they are more suitable to answer questions for specific projects such as "Are Year-Round Schools cost-effective when compared to alternatives such as regular schedules with summer school?" In brief, even Levin would probably not advocate conducting cost effectiveness of a large system.

The Chapter assumes that the success or failure of SCBM will be judged by the Educational Assessment and Accountability System (page 68). This is only partially true. The Educational Assessment and Accountability System will provide data on how Hawaii public schools as a system compares to the rest of the nation. The School Status and Improvement Reports will provide more specific information on how each school performs whether it employs SCBM or not. The formative and summative evaluations for each SCBM school will provide even more specific information on the degree to which an SCBM school is succeeding.

The "Discussion" states "...the crucial issue confronting the Legislature at this time is whether or not school communities should be permitted to implement SCBM without the EAAS in whole or in increments" (page 69). We believe the crucial issue is whether the Legislature (and other units of State government) will be willing to relinquish some of the power they currently exercise over schools. Will they be able to make use of and benefit from the local SCBM "constituencies" (site councils)? School administrators and staff have, are, and will continue to pay attention to effectiveness, equity, and efficiency concerns. How they will convey to local constituents their efforts and progress on these accountability dimensions, however, will undoubtedly be very unlike the current PPB system. That system seems only to assure one set of State officials that other sets of State officials have followed, minimally, the PPB format. It does not provide the kind of accountability we think a school community may want in the future.

This Chapter states, "SCBM ... will cause the DOE to adapt the existing PPB system to meet the informational demands of school communities" and "DOE should begin discussing this mechanism or the development of this mechanism" (page 67). This statement seems to assume that a PPB-like mechanism will be useful to schools and their community constituents. It also seems to assume that no such mechanism is currently in place. While there is no singular mechanism in place, there are many. Consider, for example, current formal sources of information about the school's instructional program: the Foundation Program, ACCN, BOE graduation requirements, AIM, and the school's own School Improvement Plan. At the secondary school level, there are also detailed course guides and related course registration materials. Related to improvements in the instructional program are numerous inservice training projects and programs that have been planned and documented, many of which are statewide in scope, e.g., Chapter 1. There are numerous sources of informal information available as well, e.g., students, in particular, can and do provide quite candid appraisals of their instruction and instructors. These various "mechanisms" all influence and guide curriculum and instruction, fostering both bureaucratic (uniform, organizationally centralized) and

professional (individualized, local) types of accountability. The real issue is what type or types of accountability are needed and who will be served by them. Would a more unified PPB-like mechanism be useful to schools in reporting to their communities? No, not if it is seen as "mandated from the outside" and has the perceived impact of substituting a pseudo-analytic numbers game for the interpersonal processes of consensus building and shared decision-making which are the bedrock of SCBM. How would improvements be made in school accountability reporting? Before pushing some variant of PPB into the schools, should not we practice what we preach, i.e., obtain clear answers to: 1) What are the accountability/informational needs of school communities? What do they need and want to know? 2) To what extent are those needs satisfied and unsatisfied? and 3) What are appropriate ways of communicating and disseminating such information to school communities?

In the case of SCBM, it is important to note that it is primarily concerned with a philosophical approach. It is based on such premises as: 1) decision-making is best made at the point closest to the action, 2) participation is important in itself, and 3) citizen ownership and control are more desirable than centralized decision-making. In other words, the SCBM approach will probably be reconsidered only if evaluations disclose major decreases in student outcomes. To be sure, accountability systems are least effective when assessing actions based on philosophic premises.

In sum, accountability in the Department of Education is composed of: 1) routine evaluations of ongoing programs and project evaluations of new projects, 2) the School Status and Improvement Report for each school, and 3) the Educational Assessment and Accountability System which assesses the Hawaii public educational system.

Chapter 6 Allocation

Allocating funds to ensure the equity of educational outcomes is certainly a worthy goal. Unfortunately, the problems associated with implementing this goal are formidable. They involve the absence of data and the

tremendous amount of funds that would be required for research to obtain the data. Perhaps some crucial data are not knowable at this juncture in the study of human affairs. Educators, physicians, and psychologists do not know how to capture the teaching methodologies, personal motivations, physiologies, and psychological maladies that affect children not to mention the interaction of these variables. Additionally, extensive expenditures are required to produce equity of outcomes for special education students unless agreement is obtained to reduce expenditures for other groups such as gifted children. In brief, while ensuring the equity of educational outcomes is an appealing idea, practical implementation to the extent called for in the Chapter does not seem to be around the corner.

Chapter 7 Program Structure

The reason that the Department's program structure has been controversial is that all program structures have limitations. The current structure has been forged as a result of compromises and experiences. Persons advocating changes should be required to provide detailed advantages and disadvantages of their proposals.

Summary

The Report is erudite. The author is commended for compiling and presenting problems associated with complex phenomena. The Report will make excellent supplemental reading in a graduate educational administration course because many issues lend themselves to heated discussion. The Report contains much that is accurate, positive, and educational. Although there is much agreement with the Report, the foregoing comments have covered points of concern.

KIM:jts

cc: Planning and Evaluation Branch

COMMENTS OF THE LRB REPORT
By: The Budget Branch

General comments:

The report is too technical. Parts of the report are so technical, it cannot be readily read or understood by the layperson. This means, neither the governor, the board of education, the legislature, or other bureaucrats can understand the report. Too bad. The only persons who can truly understand the report, aside from the author, are other technicians steeped in statistics.

The report misses the main points of funding support. It delves into everything else such as the program structure, the allocation of funds within DOE, accountability, etc. What it doesn't discuss is how Hawaii stacks up against the funding support provided education in other states, or the allocation of funds among the major programs of state government (health services, welfare services, higher education, public education, transportation, prisons, etc.) Although public education is touted as a top priority program, is it in fact getting its fair share of the state resources? There are indications that DOE is annually getting a smaller and smaller share of the total state general funds, that the budgets of most other agencies are growing at a faster rate than DOE. The report sheds no light on this concern.

In the following sections, we will comment specifically on each chapter.

1. **Chapter 2. The report does not clarify how to measure funding support.** In education, as in all programs, there are two things that must be measured: costs or inputs, and outputs or outcomes. There is a belief that the more you put in, the more you should expect out. For example, the more you pay for education, the better the quality of education you should expect. A school district that spends $10,000 per pupil should expect a higher quality education than a school district that spends $2,000 per pupil. So while it is important to measure the outcomes of education, comparing the test scores, attendance rates, dropout rates, etc. of different states, it is just as important to measure and compare the efforts being made by the states to provide quality education. This is where funding support comes into the picture. The report seems to reject all measures proposed by DOE to gauge funding

support. Yet it proposes no alternative measures, nor does it make any attempt to gauge Hawaii's funding support for education. The key questions are: Is funding support important to the question of quality education? If so, how do you measure funding support? In this regard, the report sheds no light other than to reject all the data presented by NCES or other statistics presented by DOE to gauge funding support. DOE also contends that the state is allocating a smaller share of the revenue pie to public education. Other state programs such as prisons, higher education, public welfare, public housing, health services, etc. are receiving a larger share or percentage of the total general fund pot. And these increases are coming at the expense of public education. The report contains no analysis discussion of this contention.

2. **Chapter 3. Inflation.** The report spends a whole chapter discussing inflation and its impact on expenditures. The report seems to imply that it is better to compare expenditures with itself, that is, from year to year, rather than with other states and school districts. Comparing costs from year to year is enlightening. But it is not the crucial or only comparison. The fact is, the outcomes of education in Hawaii must be measured against national norms, that is, the educational achievement levels of students in other states. Whether we like it not, people are interested in the results of standardized tests and the so-called "Wall Chart" published annually by the federal government. Even with all its flaws, the reports published annually by NCES do provide indications of where Hawaii stands on such issues as funding support.

3. **Chapter 4. Expenditures for education.** This chapter presents some expenditure information. However, the reports are difficult to understand. If the purpose of the reports is to statistically compare Hawaii with the rest of the nation, then:
   a. The national average should be used with Hawaii included. This will provide a true picture of the national statistics.
   b. The mean and standard deviation should be used as descriptive measures because, unlike the median, they take into account variability and sample size. Since variability does occur between the states, the variability should be taken into account.
   c. The measures of skewness and kurtosis provide information about the characteristics of the sample and does not provide any improvement over the mean in the

comparisons with the state of Hawaii. There is no commonly agreed upon standard on what value constitutes a non-normal distribution. The current analysis does not appear to require a normal distribution.

d. If LRB is claiming that the national sample does not lend itself to parametric statistics, then ranking should be used instead of quartiles. Quartiles are just a broad categorization of rankings. Rankings provide much more specific information about where Hawaii stands in relation to the other 49 states.

The use of ratios in the comparison of the FTE of instructional, administrative and support staff is questionable. The ratios assume that all three measures are equivalent in comparison to the number of students enrolled. If one of the three measures are artificially high or low, then the difference will be exaggerated when using the ratios.

A more valid analysis would appear to be the use of the ratio of each of the three types of staff to the number of students enrolled. The three types of ratios should then be compared among themselves and not combined. The comparison of instructional staff to support staff to administrative staff complicates matters too much since the "ideal" ratios for each are not equivalent.

We have verified with the National Center of Education Statistics (NCES) that the reporting of Officials and Administrators (item C 06) in the nonfiscal survey primarily includes district personnel in those positions. DOE's reports for the 1989-90 and thereafter are consistent with the reporting of other states.

We have made an effort to improve the quality of data reported to NCES. As a result, where reports prior to 1989-90 did not provide information relative to items C 05, C 07, and C 09, (library support staff, administrative support staff, and school administrative support staff, respectively), the information is now provided. As previously indicated to the author of the LRB report, information considered to be unreliable in reports prior to 1989-90 were subsequently corrected in 1989-90 to reflect a more accurate distribution of personnel.

We take offense to the conclusion by the author that the notable difference between the two reports "were the result of an elaborate 'shell game' wherein FTE's were

reallocated to other categories to reduce the number of FTE officials and administrators." If is difficult to understand why the author imputes evil intent on the part of DOE. In fact, DOE's has been working closely and diligently with NCES to refine and correct the data each year, striving for greater accuracy, and clarifying and interpreting the NCES's instructions and definitions so that the information provided by Hawaii is comparable to the data being provided by other states. This was all explained to the author during his research.

In the tables, the school year 1989-90 is reported as fiscal year 1989. Actually, school year 1989-90 is normally reported as fiscal year 1990, not 1989.

In summary, the report presents virtually no analysis of the information in terms of where Hawaii stands in comparison to other states. The discussion is focused mostly on the limitations of the data.

4. **Chapter 5. Accountability.** The report stresses the importance of accountability. We do not dispute the importance of measuring DOE's educational effort through such measures as national tests and other national measures such as dropout rates, absenteeism rates, etc. But as mentioned earlier, education involves two key factors, the inputs and the outputs. You should try your best to measure outputs. But you should also try to measure inputs. The report stresses the need to measure the outcomes of education without clarifying the need to measure the inputs. Also, if you cannot measure something as simple as inputs or the costs or expenditures of education, how do you expect to measure the outputs of education which is much more difficult to measure. As to the question of whether school communities should be permitted to implement SCBM without having in place a functioning educational assessment and accountability system? The answer is a resounding "YES". Even if SCBM has little impact on student achievement, and there is a distinct possibility this might happen, this does not mean that SCBM should be terminated. SCBM has to do with empowering the local communities, providing the people with freedom of choice, allowing for greater public participation in the affairs of public schools, bringing more democracy to state government. Even if test scores do not significantly improve after SCBM has been implemented, the schools should not revert back to a more totalitarian form of government where controls and

decision-making are highly centralized at the state level. In this regard, SCBM is not like launching another education program that needs to be piloted and evaluated before it can be implemented statewide. It is about freedom, justice, citizens participation, shared decision-making, and local control. It is about bringing democracy to the governance of public education. What is happening in DOE through SCBM is no different from what is happening on a larger scale in the Soviet Union where the central government has decentralized its authority to the different republics. Would you revert back to tight central controls if it is shown that the republics are operating inefficiently? No. SCBM lies at the heart of democracy and the democratic values we cherish. SCBM should therefore be measured against these values and other objectives rather than primarily by student achievement.

5. **Chapter 6. Allocation.** The report contends that the allocation system needs to be amended to equalize educational outcomes. This is easier said than done. If this was so easy to do, we would have done it a long time ago. The fact is, the underlying premise of all allocations is an attempt to equalize educational outcomes. For example, the reason why the allocations for special education students are many times the allocations for regular students is to reduce the disparity in educational outcome between regular and handicapped students. While we strive to attain equality of educational outcomes, it is a known fact that no matter how much one spends on a severely mentally retarded student, that student will never equal the educational achievement of a gifted student. Since the abilities and talents of the different students are so diverse, it is expected that achievements will also be diverse. So in a strict sense, equality of educational outcome cannot be attained. The question of how much should be allocated to the different classes of students to assure equality of educational outcomes is a difficult question. Over the years, DOE has tried to allocate its funds to equalize outcomes, that is, to try to provide the best education for each child, regardless of abilities, personal handicaps, or other problems. We know of no system that can guarantee equality of educational outcome. At present, individual education programs are developed for each handicapped student and limited English proficient student. Resources are provided to implement these IEPs. Additional resources are also allocated to provide special

services to the alienated, the gifted and talented, and to other students with unique needs. We think this is fair. If there is a superior, more quantitative allocation system that can assure equality of outcome, we would like to know what it is and how it works. We are always striving to improve the allocation system.

6. **Chapter 7. Program structure.** The program structure serve diverse purposes. It serves the purpose of planning, decision-making, execution and control. We believe the most important function of the program structure is not budget preparation, but budget execution. The way the program is structured is the way the funds are going to be appropriated, allocated, executed and controlled during implementation. At the lower levels where the programs are being implemented (such as at the school level), if the program structure violates the organizational structure, there will be horrendous implementation problems. Intricate distribution formulas have to be designed to allocate funds which are appropriated one way to an organization that will execute the budget another way. Also, as the funds are spent, crosswalk schemes have to be designed to reconcile the actual expenditures by organization with the program appropriations. In the development of the program structure, primary consideration should be given to budget execution, not budget preparation. This means that under no circumstance should the program structure impede the implementation of the program. The legislature does not implement programs. The schools do. This is why the concerns of the schools should be paramount in the development of the program structure. As far as the legislature needing more information during budget preparation, there is no need to change the program structure to obtain more data. If the legislature wants budget information sorted differently, perhaps by schools, or by districts, or by grades, or any other way, then all it has to do is ask DOE for this kind of information. If the budget information is being recorded by the schools and stored in the computer in that manner, then it is an easy task to retrieve the information for the legislature. At present, the legislature regularly asks for mountains of budget and program information when it reviews the budget. And the demand for information is issued not by one legislative committee, but by at least 4 separate committees. For these reasons, we do not believe the program structure is need of change, or that legislative decision-making will get better if more information is

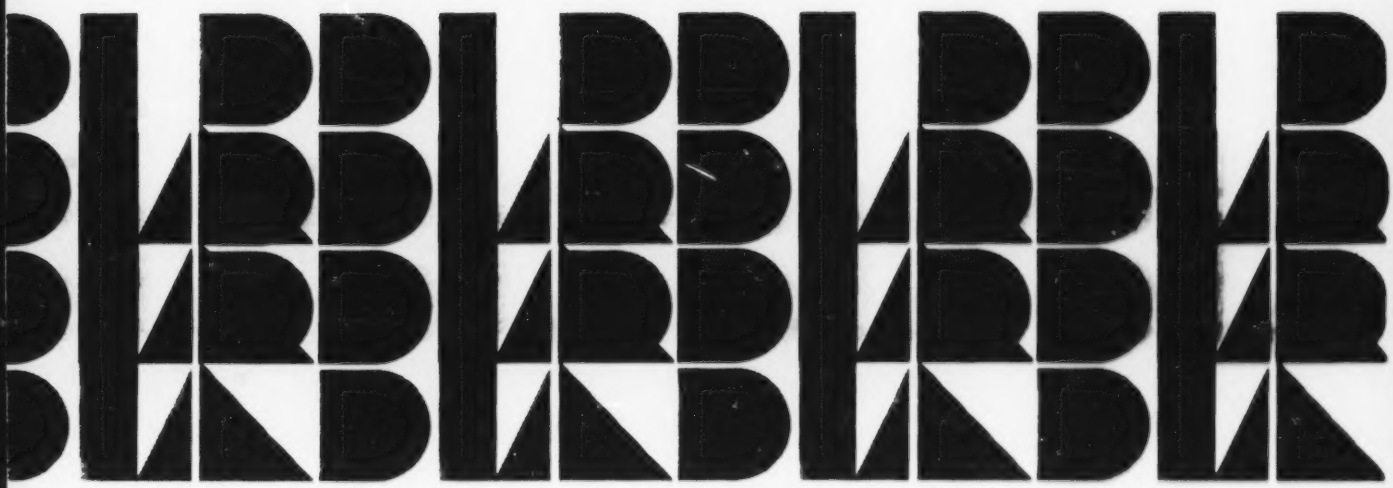
provided. We believe the program structure is basically sound and in need of only minor change. The only changes we would like to see are a consolidation of level 5 programs in EDNs 106 and 108, and the reassignment of some level 5 programs to their proper EDNS. For example, "Future Homemaker of America" is assigned to EDN 106. This program is a student club and more properly belongs to EDN 207 (Student Activities). Also, we would like to see all the Purchase of Services and Grant-in-Aid programs be consolidated in one EDN rather than scattered among the various EDNs. These are the kinds of structural changes we want to make, rather than a major revamping of the structure. In the future, if the program structure must be changed, the change should be toward consolidating or reducing the number of EDNs or appropriation categories. In other words, we should move toward larger and larger lumps, perhaps first moving from the present 17 EDNs to 5 EDNs, and later to only one EDN, which is a truly lumpsum budget. With lumpsum budget, the schools can then be given one allocation for all their programs. The schools can decide how to allocate the funds to the various programs. The schools will have maximum flexibility to fully implement SCBM. Meanwhile, as long as the legislature continues to think in terms of making program decisions for DOE and the schools, true SCBM cannot be implemented. We cannot talk about decentralized authority, budget flexibility, local control, and the schools sharing decision-making with its community if program decisions are still going to be made centrally by the governor, legislature or board of education.

PUBLISHED REPORTS OF THE LEGISLATIVE REFERENCE BUREAU

1988
1. Ohana Zoning: A Five Year Review. 108 p.
2. State Funding for the Bishop Museum. 118 p.
3. Utility-Financing of Energy Conservation: A Short-Term Approach to Hawaii's Oil Dependency. 106 p.
4. Small Business: Current Problems and Opportunities. 140 p.
- Public Use and Access in the Diamond Head Crater. 48 p.
5. Sanitary Landfills in Hawaii (with a case study of Puu Palailai). 108 p.
- Extent of Tort Liability Among Nonprofit Sports Organizations in Hawaii. 81 p.
- An Examination of Alleged Inadequacies in Pet Lodges. 18 p.
6. Trash: A Commentary on a Proposal. 126 p.
7. Access to Confidential Records in a State Archives. 53 p.
- Hawaii Administrative Rules Directory. 227 p. (reprint)
8. A Comparative Study of the Utilization and Effects of Commercial Leases and Operating Licenses in Hawaii. 116 p.
9. Pharmaceutical Assistance for the Elderly. 46 p.
10. Employer-Assisted Dependent Care. 72 p.
11. Feasibility of Establishing a State Veterans Facility for Veterans as a Distinct Group of the Elderly. 153 p.

1989
- Guide to Government in Hawaii. Ninth Edition. 194 p. $3.00
1. Intrafamily Child Sexual Abuse: Exploring Sentencing Alternatives To Incarceration. 75 p.
2. Access To Property Insurance In Areas Susceptible To Natural Disasters. 56 p.
3. Parental or Family Leave in Hawaii. 126 p.
4. Condominium Governance — An Examination of Some Issues. 119 p.
5. Collateralization Requirements for State Deposits. 82 p.
6. Special Education in Hawaii — Some Current Problems. 146 p.
7. Pathfinders: Administrative Codes, Registers, and State Blue Books. 191 p.
- Hawaii Administrative Rules Table of Statutory Sections Implemented; 1989 Supplement to Directory. 84 p.
8. Some Aspects of Quality Assurance in Home Care for Hawaii's Elderly. 95 p.
9. Care of High Risk Infants in Hawaii. 97 p.
10. Tax Credits and Care for the Elderly: The Public Policy Issues. 81 p.
11. Roads in Limbo: An Analysis of the State-County Jurisdictional Dispute. 135 p.
12. Occupational and Physical Therapists in Public Schools: The Quest for Parity. 106 p.
13. Declaratory Rulings and the Environmental Council. 67 p.
- Hawaii Legislative Drafting Manual. Eighth Edition. 121 p.
14. Rideshare Policies and Programs: A Review. 43 p.
15. Financing Higher Education: Alternate Planning and Savings Programs for Hawaii's Families. 153 p.

1990
1. New Categories of Teachers in Hawaii: A Review of a Concept. 118 p.
2. A Study on the Feasibility of Establishing a State Equivalent of the Federal Vista Program. 64 p.
3. The Feasibility of Centralized Motor Vehicle Administration in Hawaii. 138 p.
- LRB Publications 1963-1989. 53 p.
4. Maintaining the Affordability of State-Subsidized Housing. 38 p.
- Hawaii Administrative Rules Table of Statutory Sections Implemented; 1990 Supplement to Directory. 106 p.
5. A Taste of Aloha: Food Labeling Laws in Hawaii. 52 p.
6. Regulation of Hawaii's Roofing Industry. 47 p.
- Hawaii Legislators' Handbook. 150 p.
7. Generic Drug Substitution: Role and Function. 197 p.
8. Working to Learn/Learning to Work: Secondary Education's Dilemma. 52 p.

1991
1. A Clash of Arms: The Great American Gun Debate. 200 p.
- Hawaii Administrative Rules Directory. 352 p.
2. Tuition Waivers for Hawaiian Students in Higher Education. 39 p.
3. Sex Offender Treatment — Interagency Coordination in Hawaii. 72 p.
4. Trial Court Consolidation in Hawaii: The Road Already Taken? 74 p.
5. Nonresident Traffic Violation Enforcement. 44 p.

BEST COPY AVAILABLE